Exhibit 67

PLAINTIFFS' RESPONSE TO DEFENDANTS' MOTION TO EXCLUDE GENERAL CAUSATION TESTIMONY OF PLAINTIFFS' EXPERTS

Case No.: 4:22-md-03047-YGR MDL No. 3047

In Re: Social Media Adolescent Addiction/Personal Injury Products Liability Litigation

Document Provided in Native Format



SOCIAL COMPARISON ON INSTAGRAM

Wellbeing Research

Nov, 2018

MASS MEDIA SHOW TREMENDOUS INTEREST IN SOCIAL COMPARISON ON OUR F

The New York Times

The Agony of Instagram

For many urban creative professionals these days, it's not unusual to scroll through one's Instagram feed and feel suffocated by fabulousness:

Do You Have 'Instagram Envy'?

BY SHANNON DOYNE DECEMBER 16, 2013 5:08 AM

Most people realize it's not healthy to compare themselves to other people — but social media presents abundant opportunities to do exactly that.

PREDOMINATELY FOCUSES ON THE NEGATIVES

"social comparison" instagram

Q

About 2,020 results (0.08 sec)

Instagram# instasad?: exploring associations among instagram use, depressive symptoms, negative social comparison, and strangers followed

K Lup, <u>L Trub</u>, <u>L Rosenthal</u> - Cyberpsychology, Behavior, and Social ..., 2015 - liebertpub.com As the use and influence of social networking continues to grow, researchers have begun to explore its consequences for psychological well-being. Some research suggests that Facebook use can have negative consequences for well-being. **Instagram**, a photo-sharing ...

☆ 99 Cited by 93 Related articles All 10 versions >>>

Attractive celebrity and peer images on Instagram: Effect on women's mood and body image

Z Brown, M Tiggemann - Body image, 2016 - Elsevier

... body dissatisfaction. It was concluded that exposure to attractive celebrity and peer images can be detrimental to women's body image. Keywords. Body image. Celebrity. Peer. Instagram. Media. Social comparison. Introduction ...

☆ 99 Cited by 52 Related articles All 5 versions >>>

- Focused on negative outcomes: depression, loneliness, envy...
- Highlight teens, especially teen girls
- Hot topics: body image, no. of likes / followers, perfection as standard, inauthenticity

"So many of the behaviors we're talking about have **pre-digital corollaries**," says Weinstein, a digital media researcher at Harvard, "They're the same sort of developmental challenges that adolescents have grappled with for decades,

though now they're taking place in different spaces that can

certainly **amplify** them and **shift** their **quality**, **quantity**, and **scale**.

Or, do they?

If so, how?

AS THE FIRST STUDY ON SOCIAL COMPARISON AT IG, THIS RESEARCH AIMS

- 1 Quantify social comparison's prevalence, and identify who's most susceptible
- 2 Pinpoint triggers for social comparison
- 3 Evaluate social comparison's relationship with authentic expression
- Assess impact of social comparison on engagement with IG, wellbeing, and emotions

WHAT WE DID

Quantitative



SURVEY

- 7 key markets
- 5,793 completes
- Conducted in Oct 2018



LOG DATA

- Matched with survey data
- Time spent
- Engagement level
- Tenure on IG

Qualitative



INTERVIEW

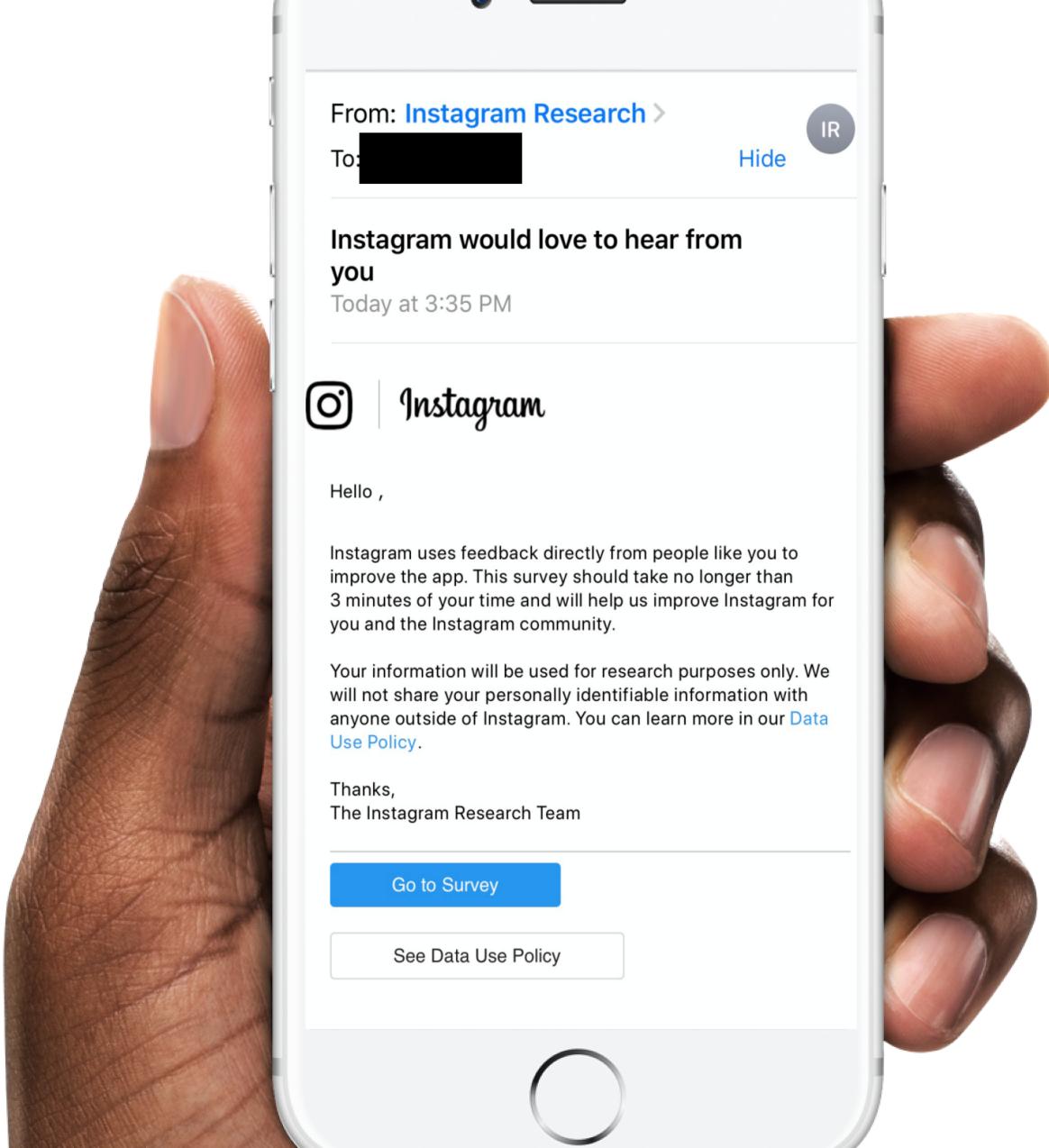
- 14 pair interviews of daily active users and habitual users
- 13 females and 15 males; 15-24 years old
- Conducted face-to-face in MPK and LA in September 2018

SURVEY

- A branded **email survey** of a randomly selected sample of monthly active users (L28>1)
- Stratified sampling in 7 key markets; Sample is then weighted based on country

| Country | Male | Female | NA | Total |
|---------|-------|--------|-------|-------|
| BR | 167 | 301 | 110 | 578 |
| CA | 167 | 372 | 167 | 706 |
| FR | 278 | 683 | 229 | |
| GB | 231 | 482 | 188 | 901 |
| JA | 258 | 445 | 191 | 894 |
| MX | 204 | 265 | 112 | 581 |
| US | 230 | 544 | 169 | 943 |
| Total | 1,535 | 3,092 | 1,166 | 5,793 |

| Age | Male | Female | NA | Total |
|---------|-------|--------|-------|-------|
| 13-17 | 134 | 510 | 38 | 682 |
| 18-24 | 260 | 737 | 26 | 1,023 |
| 25-34 | 279 | 631 | 26 | 936 |
| 35-44 | 320 | 494 | 22 | 836 |
| 45-54 | 290 | 400 | 21 | 711 |
| 55 + | 246 | 311 | 21 | 578 |
| missing | 6 | 9 | 1012 | 1,027 |
| Total | 1,535 | 3,092 | 1,166 | 5,793 |



TL;DR WHAT WE FOUND

1. PREVALENCE

- Social comparison is **common** on IG. **51%** of people experience social comparison on IG. They either **compare their accomplishments** to others or **observe other people** to decide how they should act "sometimes" or more often.
- Women and teens are more prone to social comparison, especially negative social comparison.

2. TRIGGERS

Negative social comparison is triggered mostly by **photo/video**, in particular regarding **beauty, fitness, fashion, travel, and romantic relationships**, posted by **weak ties** such as celebrities, strangers, and acquaintances.

3. AUTHENTICITY

Social comparison is associated with pressure to be perfect and less freedom to express true-self.

4. IMPACT

- Negative social comparison reduces engagement with IG.
- Negative social comparison lowers well-being (loneliness, life satisfaction, self worth, and self efficacy), and people with lower well-being may be more prone to negative social comparison.
- Most people (38%) report that the **upsetting feeling** caused by negative social comparison only lasted for "less than a few minutes" **when it happened last time**, however the **cumulative duration** is substantial: 33% of people have been feeling worse about themselves on IG for "several months to a year".

TL;DR PRODUCT IMPLICATIONS

- What if we give people more control of the types of contents they want to see, e.g. feed filters: "show me more of the content that I liked"; "show me content like this only once a week"?
- What if we give people more control of what they want to share with whom, e.g. some shared privately within a group; some shared publicly?
 - -- so that fewer people would be exposed to "luxurious lifestyle from random people"
- What if IG suggests photo filters selectively, e.g. only to certain types of photos such as landscape (low risk to trigger social comparison) but not to people portraits (major trigger for social comparison)?
- What if we launch campaigns such as "No Filter Friday", hashtag "#beyoutrueself" to promote authentic expression on IG?

ROADMAP

- How prevalent is social comparison, and who's most susceptible?
- 2 What triggers negative social comparison on IG?
- 3 How does social comparison relate to authentic expression?
- 4 What's the impact of social comparison?
 - > On engagement with IG
 - > On wellbeing
 - > On emotion

1.1. HOW PREVALENTIS SOCIAL COMPARISON

SOCIAL COMPARISON IS HUMAN NATURE AND IT IS A VALUE NEUTRAL CONCEPT

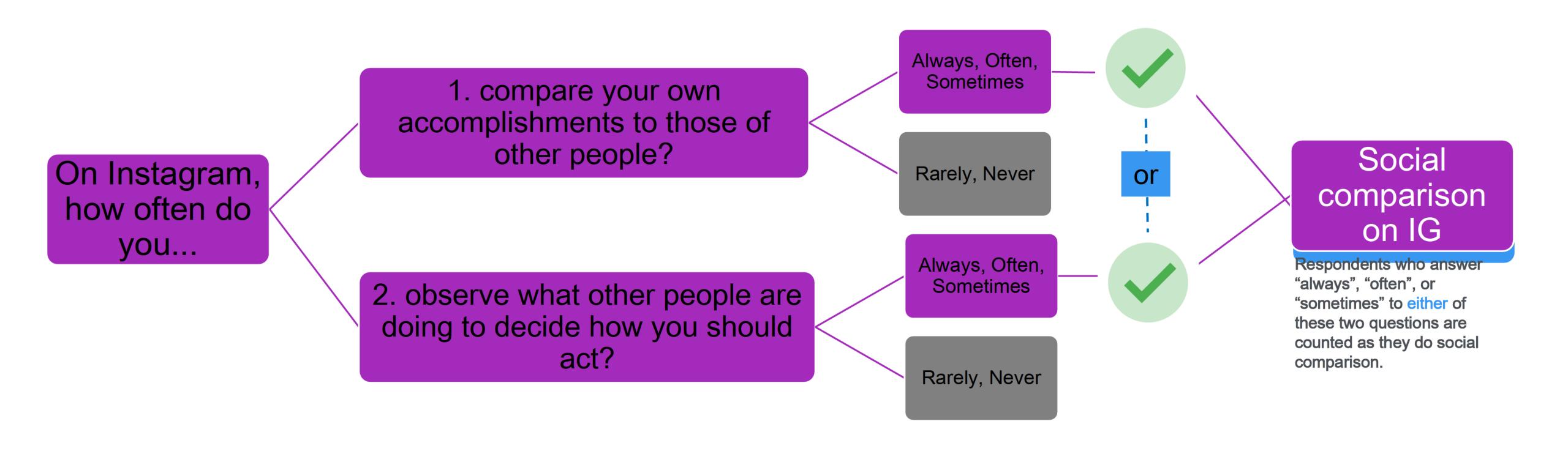
What is "social comparison"?

Hypothesis I: There exists, in the human organism, a drive to evaluate his opinions and his abilities.

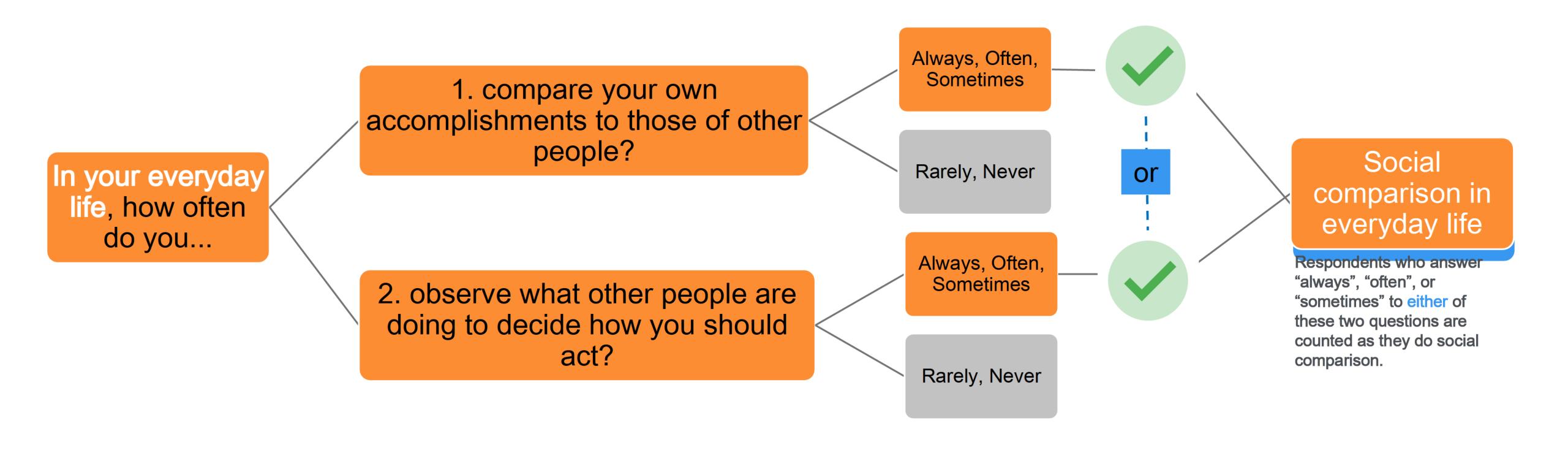
Hypothesis II: To the extent that objective, non-social means are not available, people evaluate their opinions and abilities by comparison respectively with the opinions and abilities of others.

----"A Theory of Social Comparison Processes" (Festinger 1954)

ASKING....

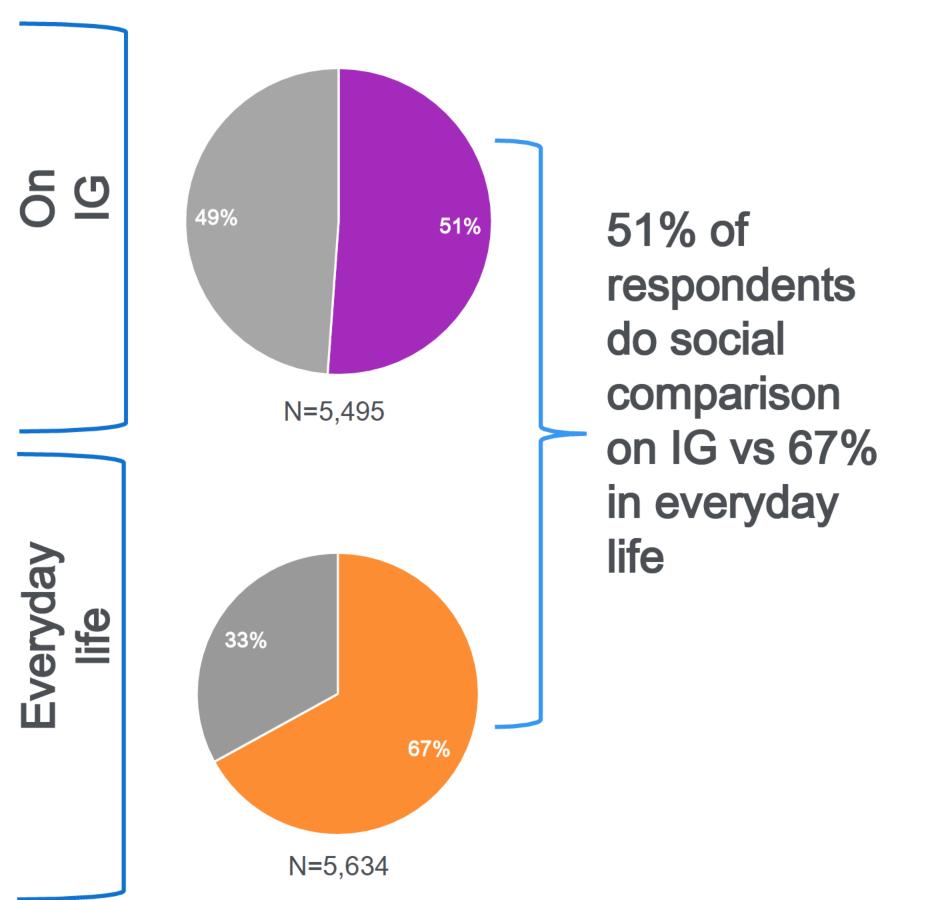


SIMILARLY, WE WEST 424 moles of 424 moles of



51% OF OUR USERS DO SOCIAL COMPARISON ON IG COMPARED TO 67% IN EVERYDAY LIFE

Overall social comparison prevalence from survey data



However, in our interviews...

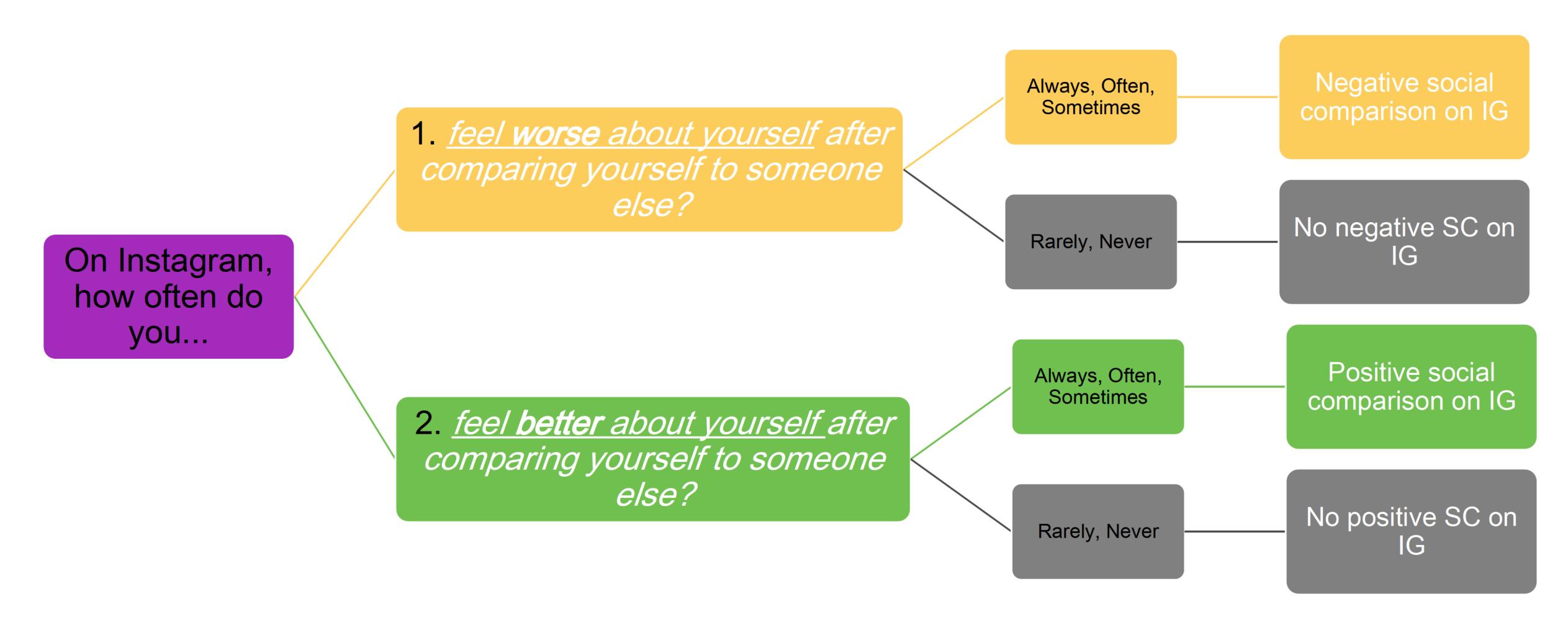
Most respondents say that social comparison **happens more often online than in real life**, because respondents think that:

- posting on Instagram is a very deliberate process where the posters curate their profiles: "People put their best on Instagram to make them look in certain ways (Nicole, 23, Female)"
- audience can scrutinize the posts: "You can take your time and sit on someone's profile for as long as you want, whereas in real life, it would be weird to stop and stare at someone for 10 minutes or to ask them a bunch of questions about their lives (Zack, 21, Male)"
- the exposure to information is more extensive than in real life: "More on Instagram, coz you can see people all around the world (Jonathan, 16, Male)."

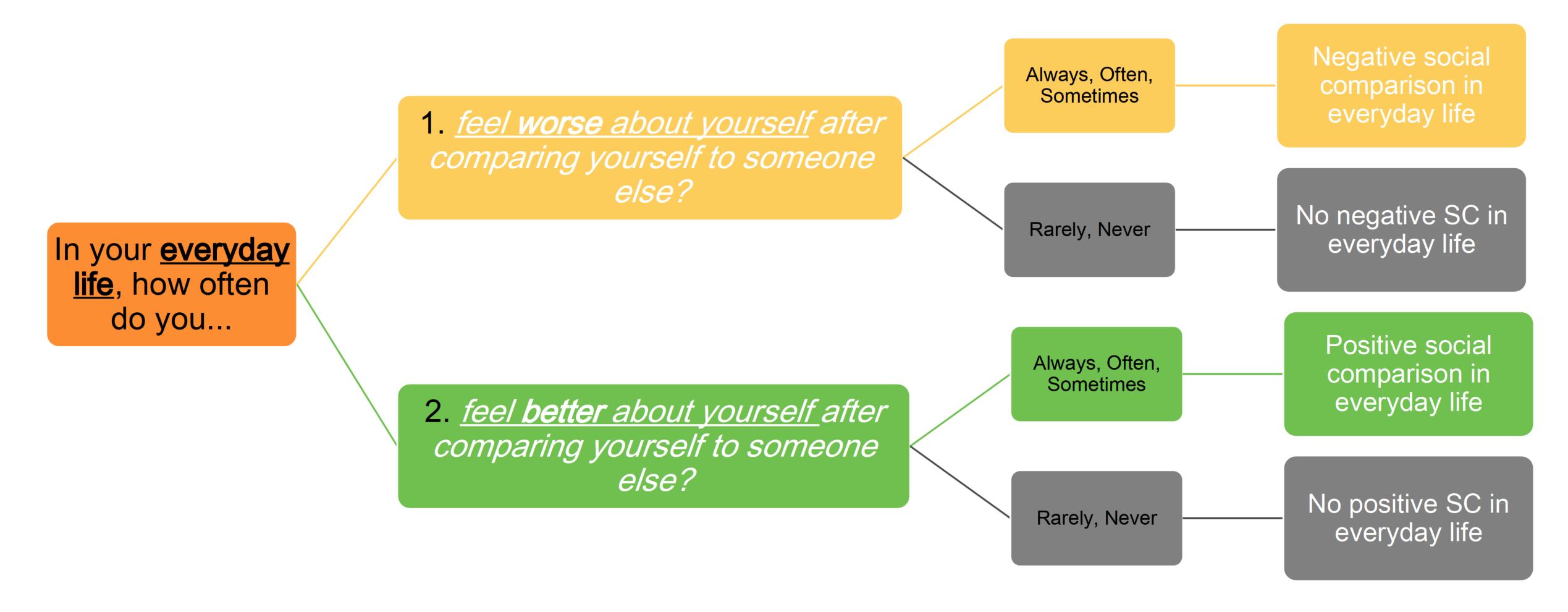
So what?

- This is the first and only data point available on IG social comparison. More data are needed to better compare prevalence online vs. offline.
- Facebook is running a
 parallel survey with the
 exact questions, which will
 provide more data to
 compare online vs offline.
- Note that people might under report due to social desirability bias

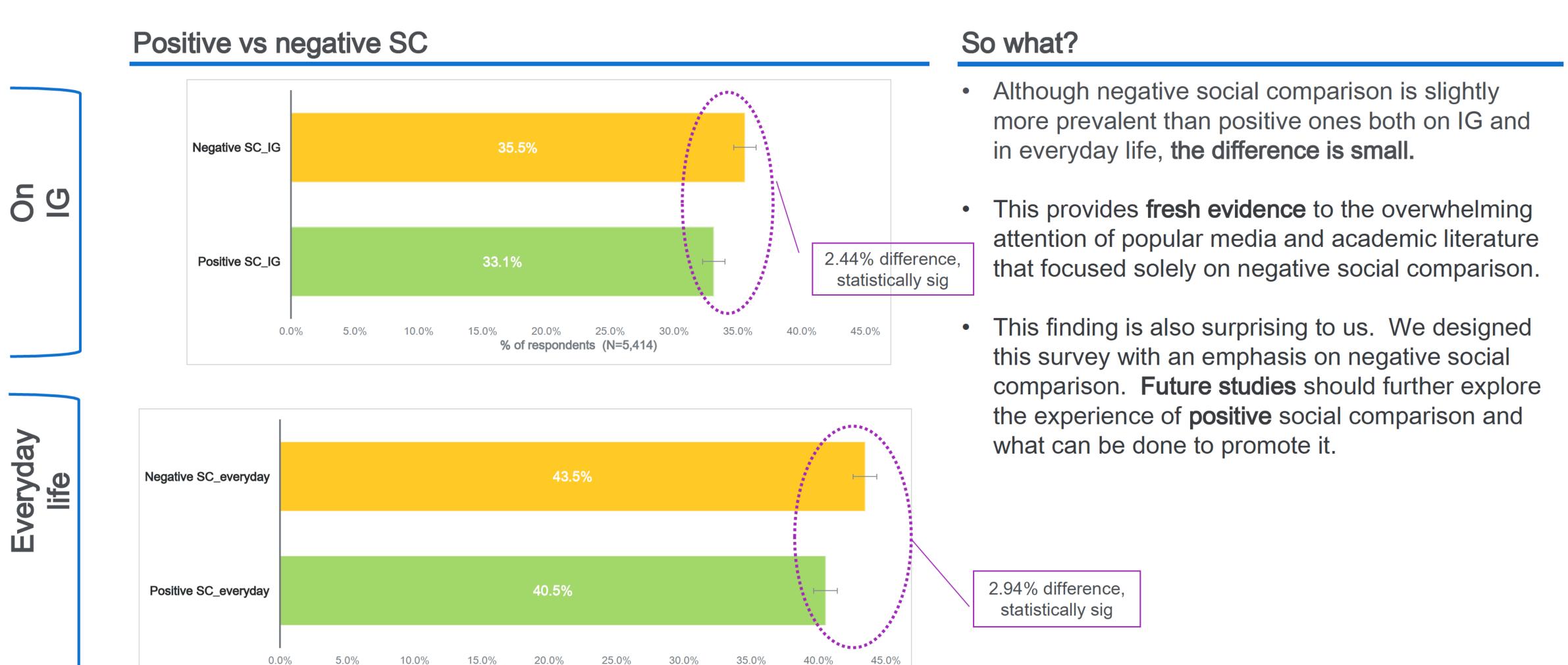
NEGATIVE SOCIAL COMPARISON ON IG BY ASKING...



WE ASK THE SAME QUESTIONS FOR EVERYDAY LIFE



POSITIVE SOCIAL COMPARISON HAPPENS ALMOST AS OFTEN AS NEGATIVE ONES—BOTH ON IG AND IN EVERYDAY LIFE



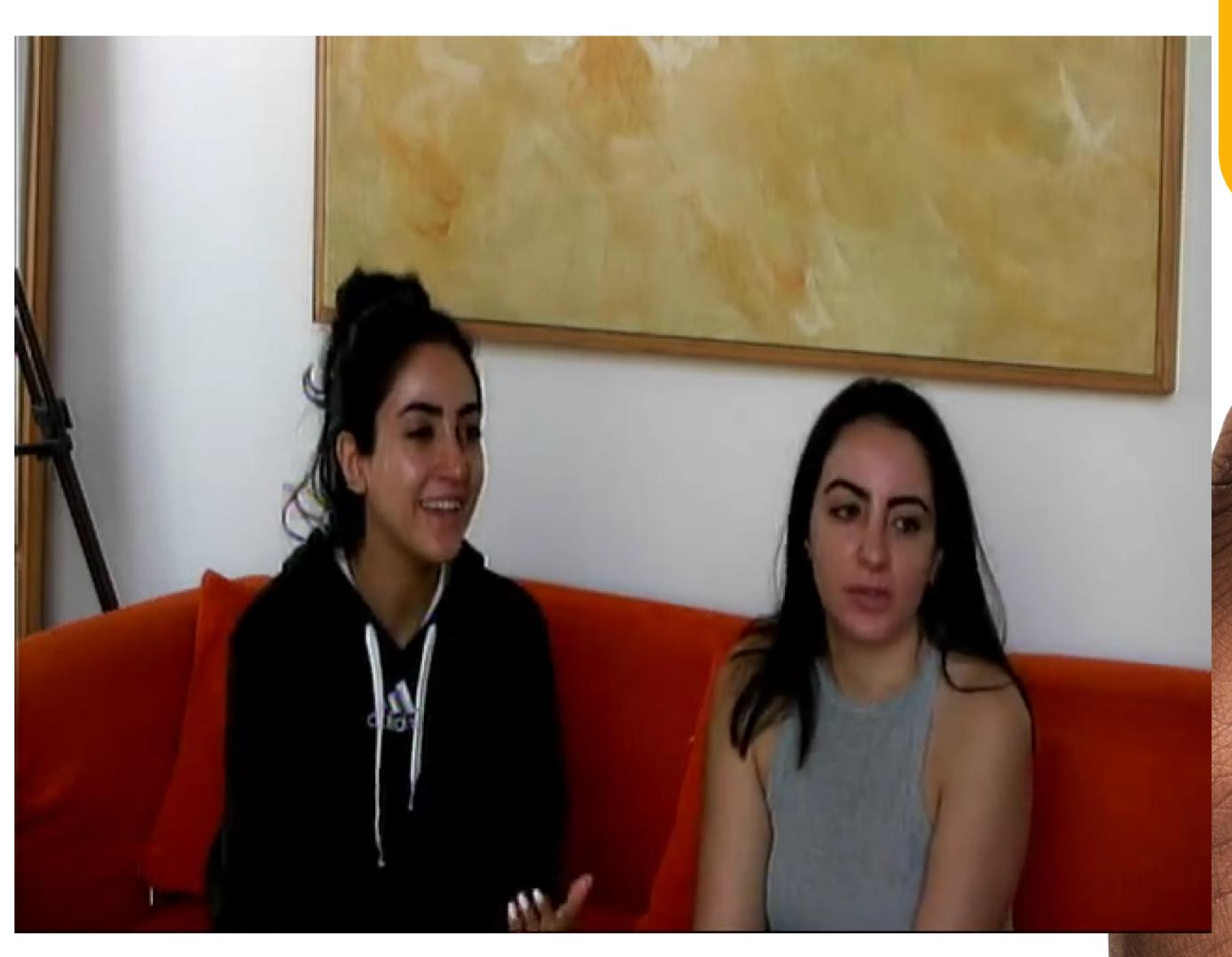
Note: The sum of negative and positive social comparison does not equal to the overall prevalence because they are not mutually exclusive, i.e. a respondent can do both negative and positive comparisons. Also, this question is asked to all respondents; it is not restricted to respondents who indicate they do social comparison prior to this question.

% of respondents (N=5,383)

Case 4:22-md-03047-YGR Document 2535-68 Filed 12/11/25 Page 21 of 53

NEGATIVE SOCIAL COMPARISON

Source: LA interview: https://fb.facebook.com/not



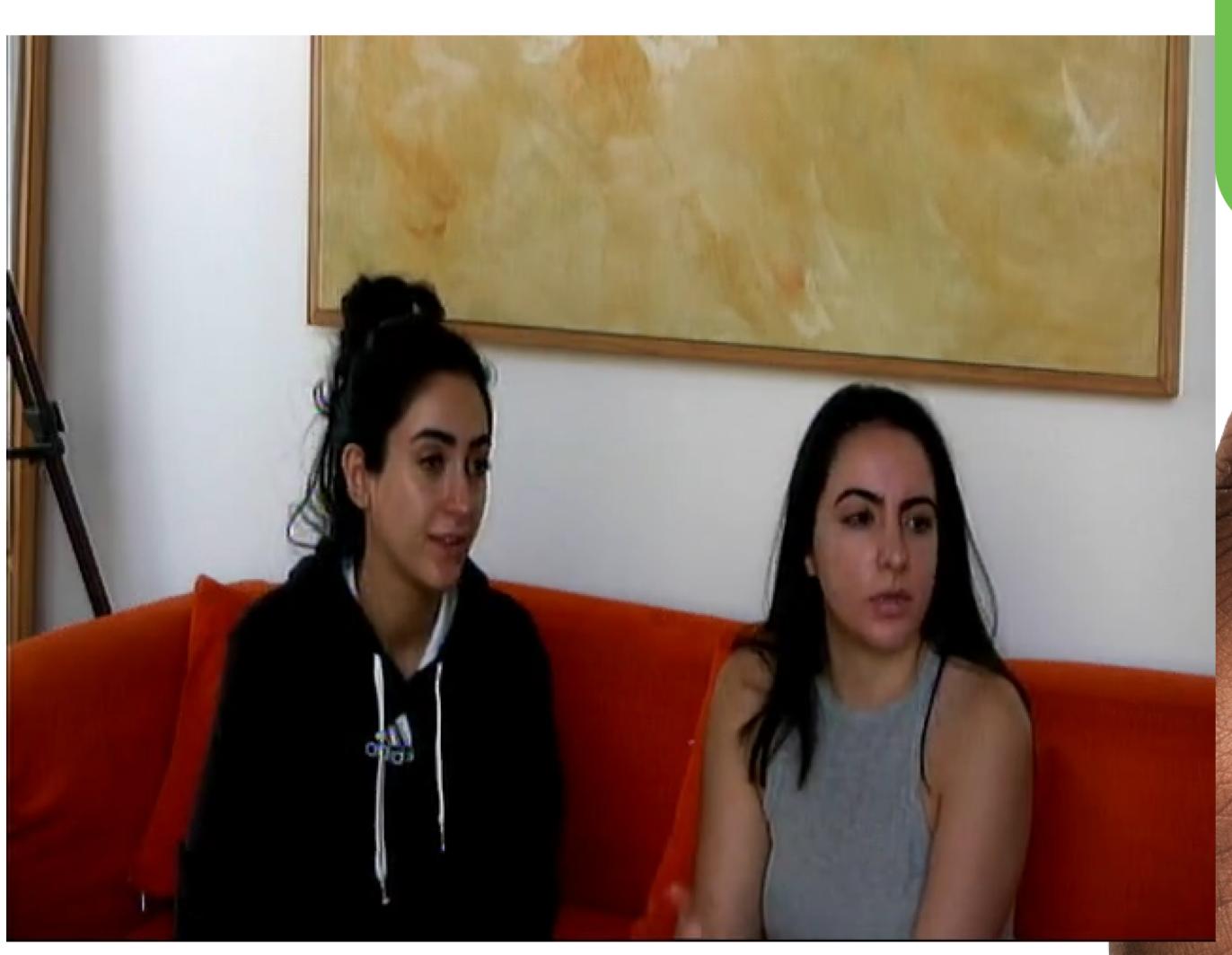
"...As a woman ... I get that I'm smart and this and that, but you know what? Sometimes I get very down and insecure and I feel bad about myself just looking at some of the images of the most beautiful woman...Maybe I am not good enough

--Golkoo, 26, college student



Case 4:22-md-03047-YGR Document 2535-68 Filed 12/11/25 Page 22 of 53

POSITIVE SOCIAL COMPARISON



"If anything, it motivates me. For example, I want to lose weight and be fit and healthy and stuff, and when I see a girl ... has a nice body or she's working out...coz lot of people share...like they are trainers or stuff. So I'm like, "Oh. "I'll save this and I'll do this... It's motivational for me. It won't put me down."

--Nicole, 23, Female, college student

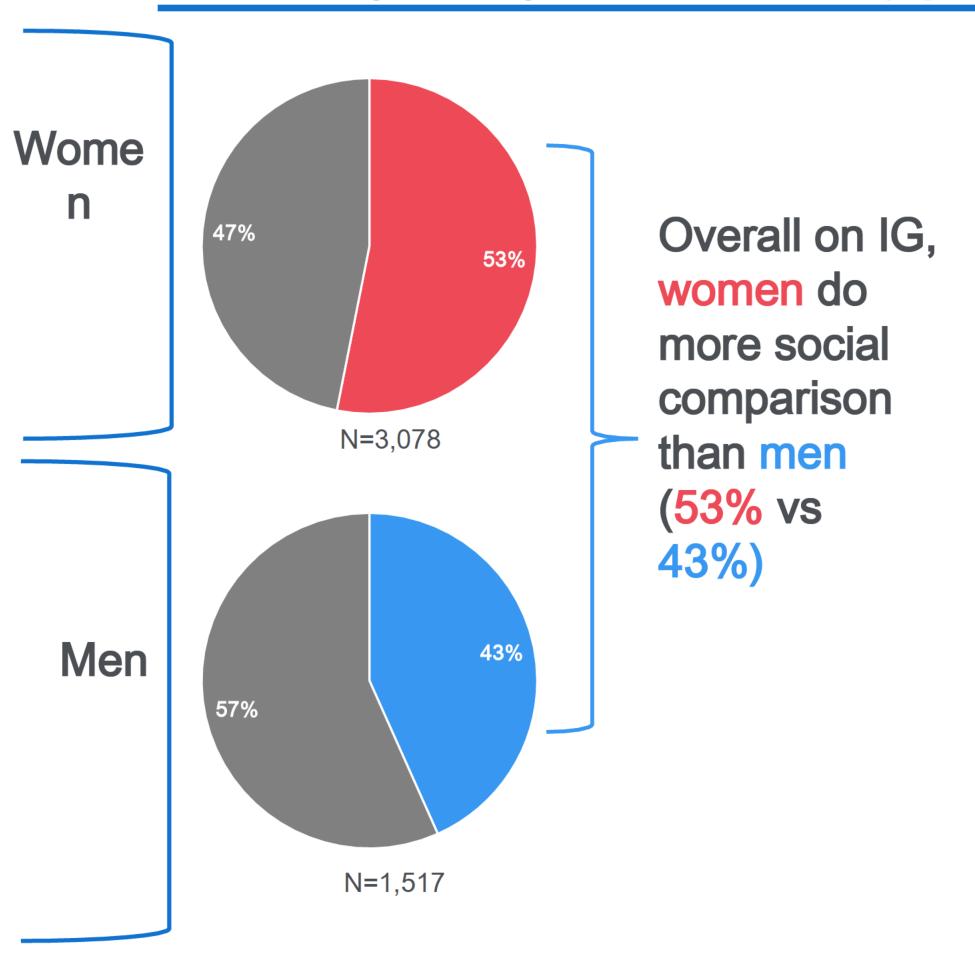


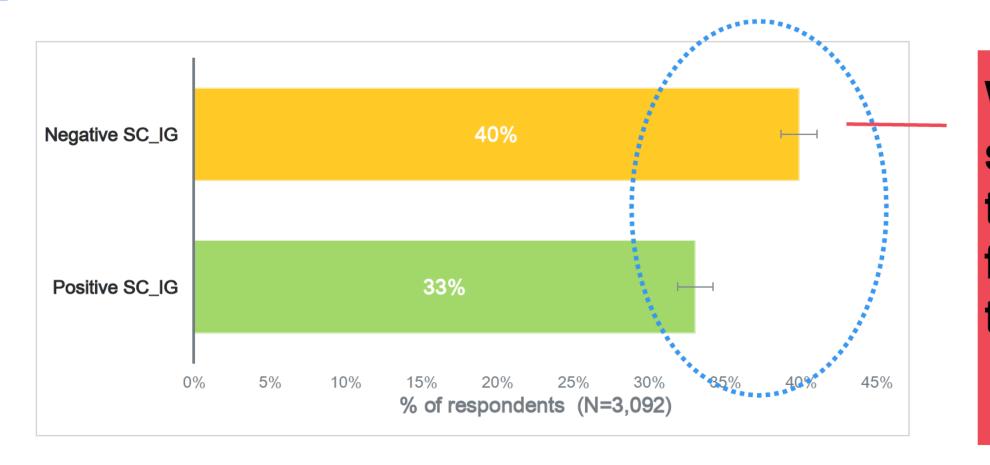
Case 4:22-md-03047-YGR Document 2535-68 Filed 12/11/25 Page 23 of 53

POST NOST SUSCEPTIBLE TO SOCIAL COMPARISON

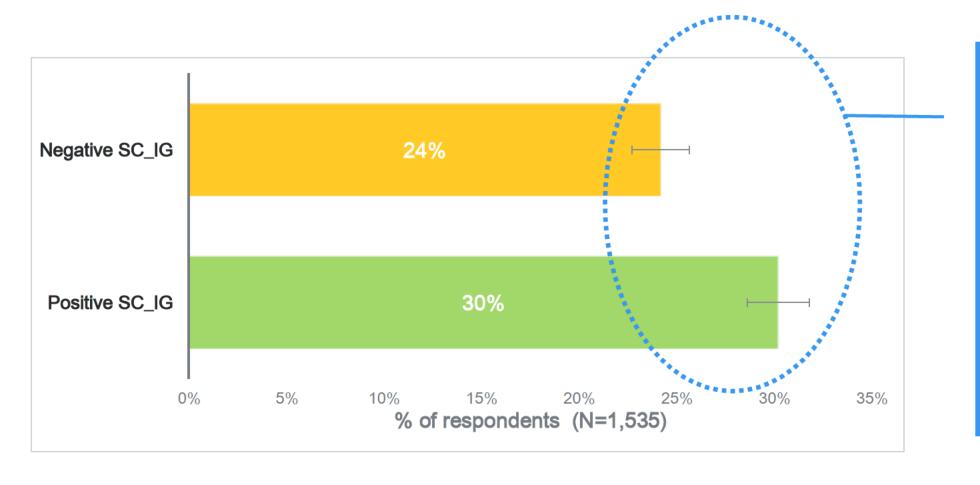
ON IG, WOMEN ARE MORE AFFECTED BY NEGATIVE COMPARISON WHEREAS MEN ARE MORE AFFECTED BY POSITIVE ONES

Social comparison prevalence on IG by gender Positive vs negative SC on IG by gender



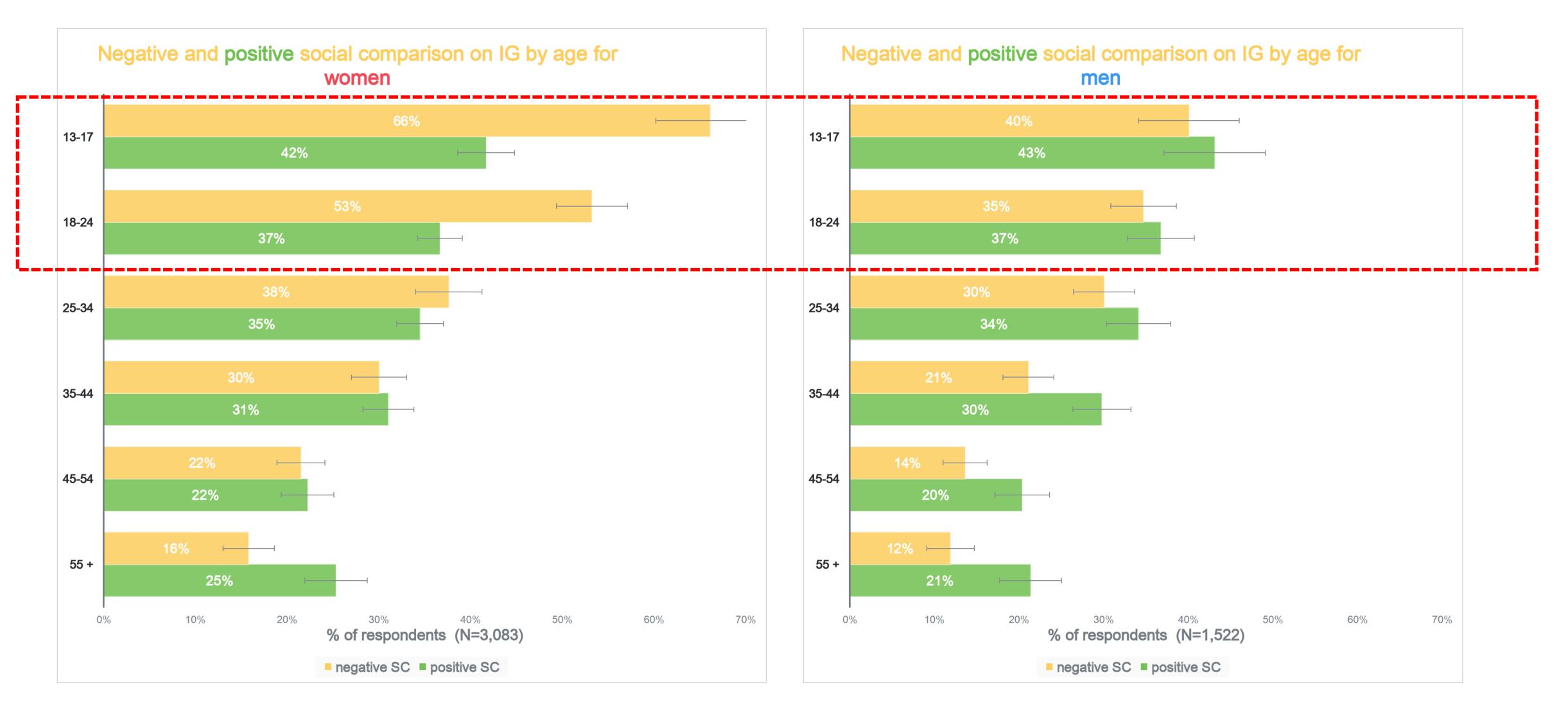


When women do social comparison, they more often feel WORSE about themselves.



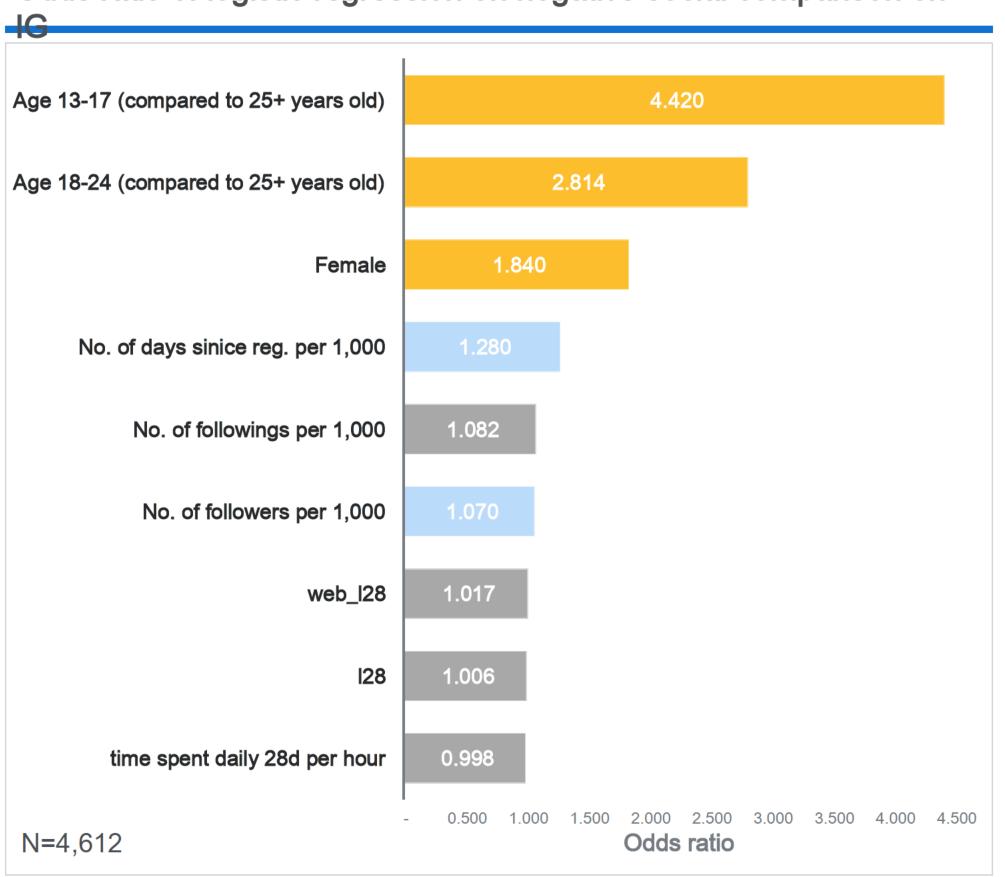
When men do social comparison, they more often feel BETTER about themselves.

TEEN GIRLS AND YOUNG WOUND ARE PARTICULARLY PRONE TO NEGATIVE SOCIAL COMPARISONS



LOGISTIC REGRESSION WITH LOG DATA SHOWS THAT AGE AND GENDER ARE THE STRONGEST PREDICTORS OF NEGATIVE SOCIAL COMPARISON

Odds ratio of logistic regression on negative social comparison on



| Statistical | Interpretation: All else equal, the odds of |
|--------------|---|
| significance | • |
| (p<0.05) | experiencing negative social comparison on IG |

| Yes | for 13-17 years old are 4.42 times larger compared to being 25 + years old |
|-----|---|
| Yes | for 18-24 years old are 2.814 times larger compared to being 25 + years old |
| Yes | for females are 1.84 times larger compared to males |
| Yes | for people who have been on IG 1,000 days longer is 1.28 larger than people who don't |
| No | Not statistically significant |
| Yes | for people who have 1,000 more followers is 1.07 larger than people who don't |
| No | Not statistically significant |
| No | Not statistically significant |
| No | Not statistically significant |

Compared to 25+
years old men,
the odds for teen
girls to do
negative SC are
8x; for young
women 5x,
controlling for
tenure,
engagement
level, no. of
follow(er)s, and
country.

Note: Logistics regression isolates the independent influence of each independent variable on the dependent variable while holding all other independent variables in the model constant. The full model controls for country (result not reported).

PREVALENCE

INSIGHTS:

- 51% of people do social comparison on IG. Positive and negative social comparison are almost equally prevalent (33% and 35%).
- Teen girls and young women do more social comparison, especially negative social comparison.
- Controlling for controlling for tenure, engagement level, no. of follow(er)s, and country, the odds for **teen girls** to do negative SC are **8x** and for **young women 5x** larger than 25+ years old men.

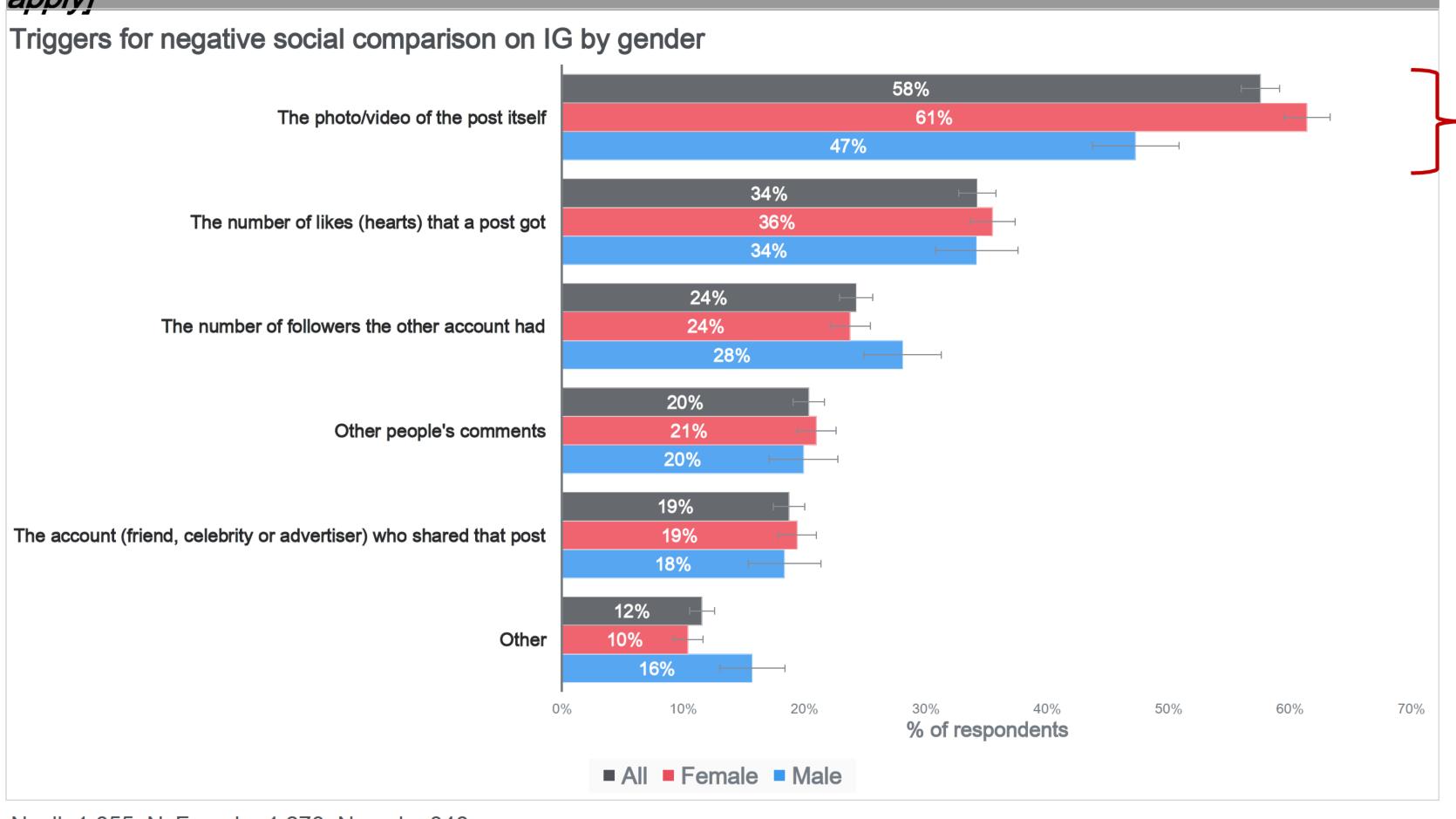
OPPORTUNITIES:

- How can we improve IG experience especially for targeted populations?
 - ✓ What if IG has a "teen mode"? Teens are vulnerable not only to negative social comparison found in this study but also a range of other stressors. We could have a product feature that better cater to teenagers' needs and better protect them.
 - ✓ More studies on teens are needed to better understand their social comparison experience, e.g. a feeds study that ask teens to go through their typical IG feeds and identify which ones are triggers and why.

2. WHAT TRIGGERS NEGATIVE SOCIAL COMPARISON ON IG?

PHOTO/VIDEO IS THE NO. TO THE OF THE PROPERTY OF THE PROPERTY

You indicated that you felt worse about yourself after comparing yourself to someone on Instagram. Thinking about the last time it happened, what specifically made you feel worse? [select all that apply]

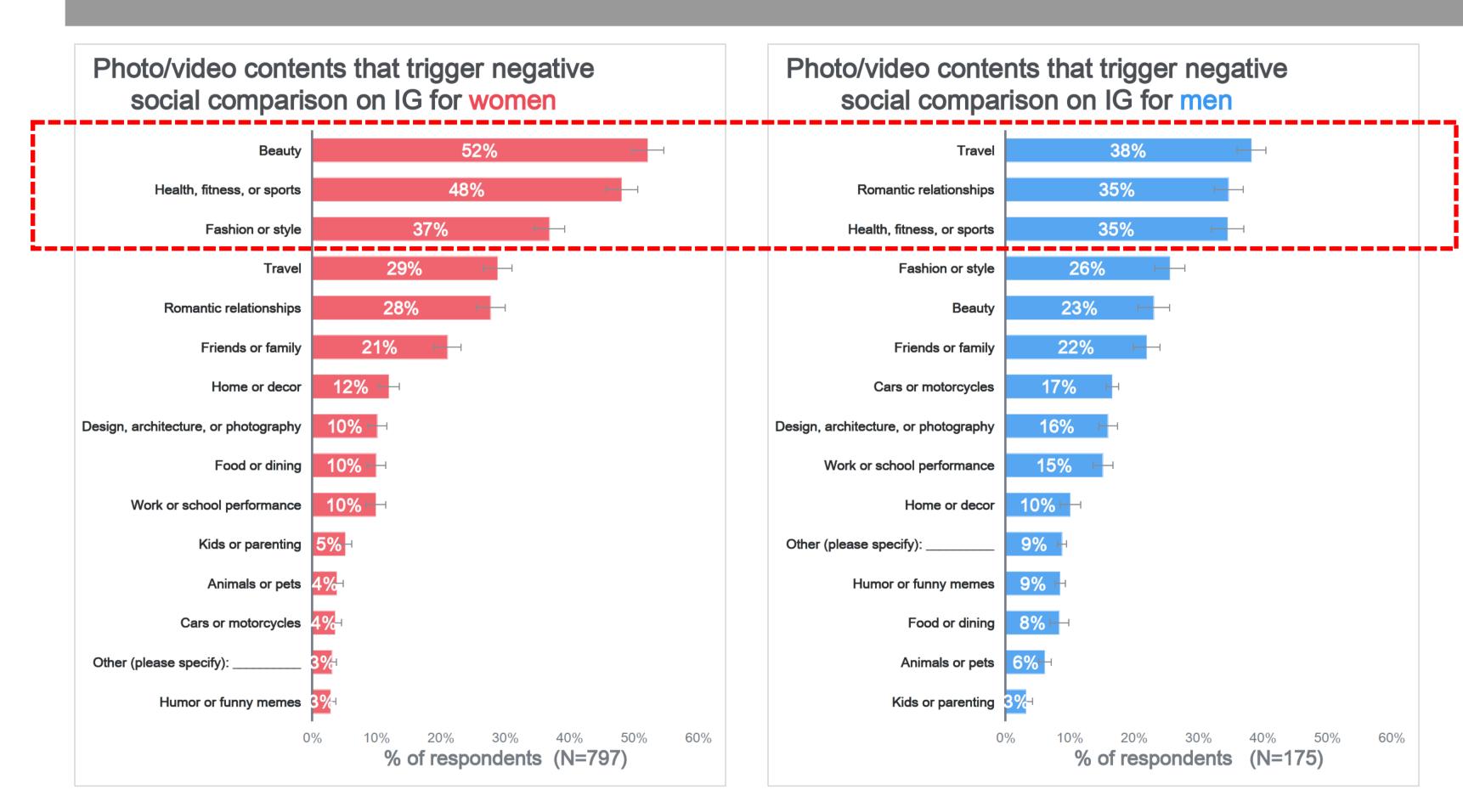




BEAUTY, FITNESS, AND PASH TOP THREE CONTENTS THAT TRIGGER NEGATIVE COMPARISON FOR WOMEN

Whereas, top three for men are travel, romantics, and fitness

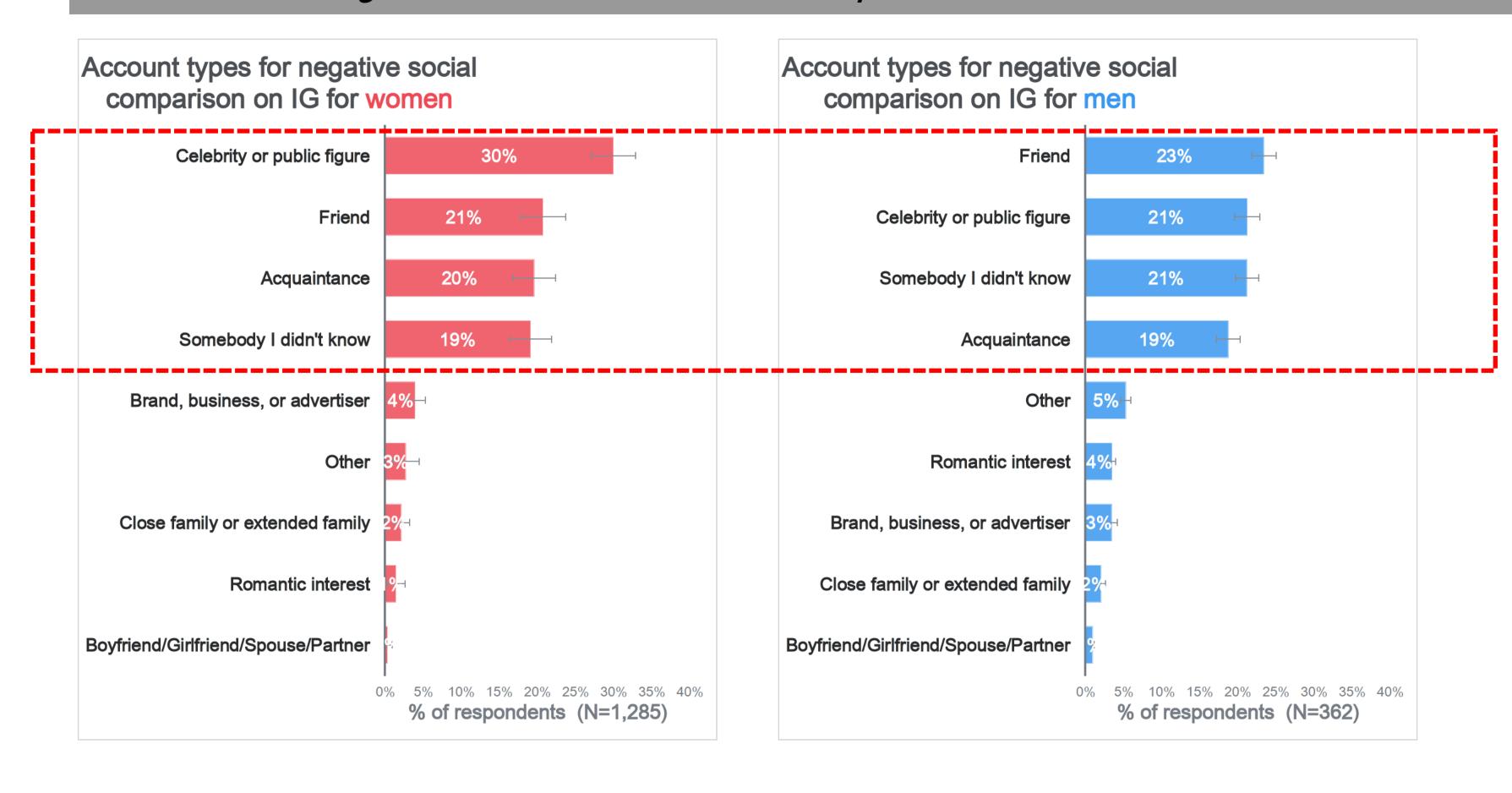
You indicated that it was the photo/video of the post that made you worse about yourself, what was it about? [select all that apply]



THE UPSETTING POSTS ARE MOST OFTEN POSTED BY CELEBRITIES, FRIENDS, STRANGERS, AND ACQUAINTANCES

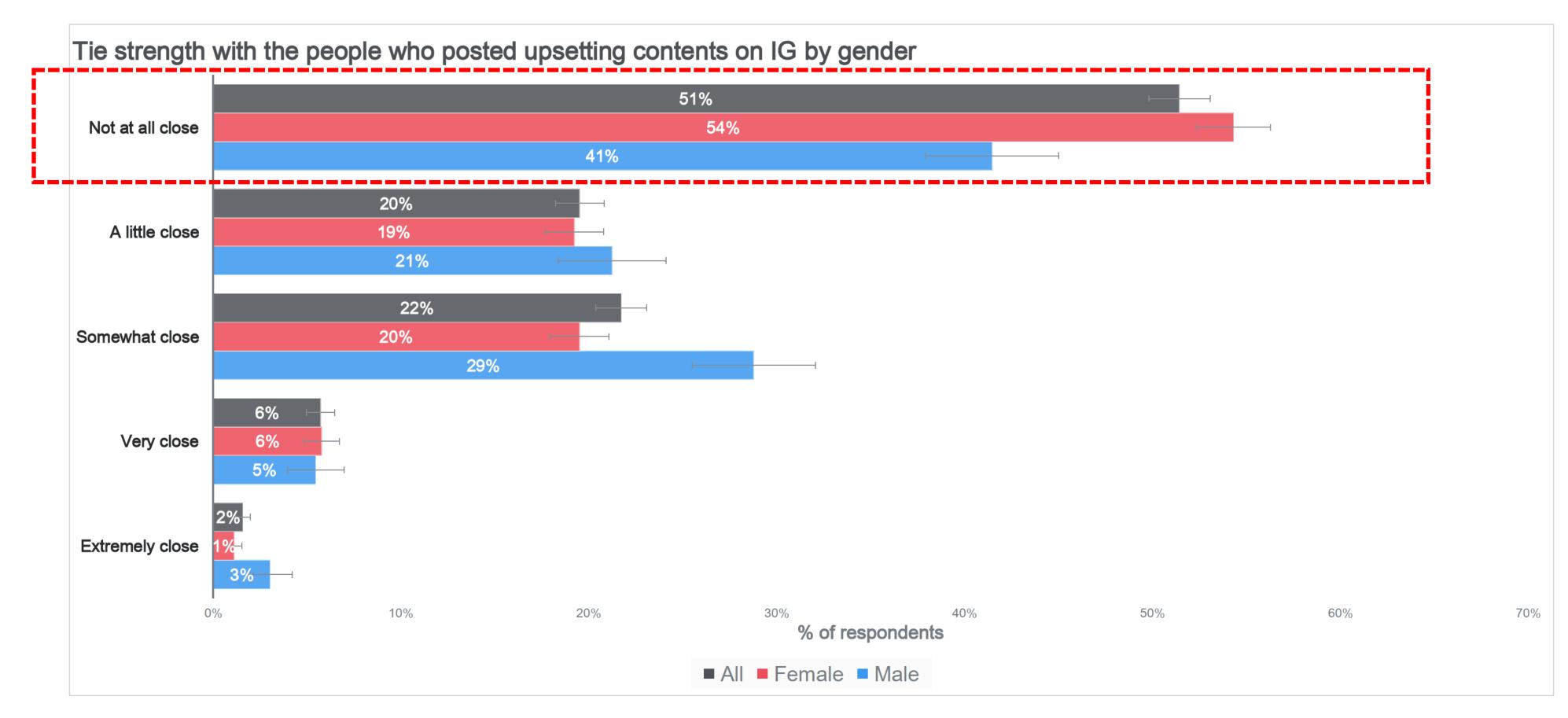
The top 4 are the same for both genders, but the ranking is different

You indicated that you felt worse about yourself after comparing yourself to someone on Instagram. Thinking about the last time it happened, Which of the following BEST describes the account who posted that content?



MOST RESPONDENTS FELT WOT AT ALL CLOSE" WITH THE PEOPLE WHO POSTED THE UPSETTING CONTENTS

You indicated that you felt worse about yourself after comparing yourself to someone on Instagram. Thinking about the last time it happened, How close did you feel to the person when they shared that photo/video?



N_all=1,750; N_Female=1,226; N_male=346

INSIGHTS AND OPPORTUNITY FOR TRIGGERS

INSIGHTS:

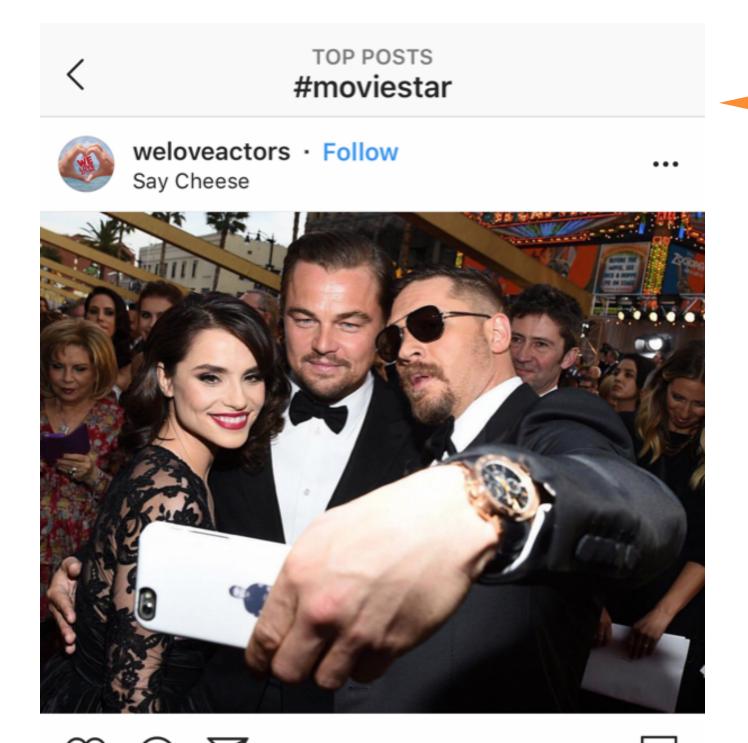
- Negative social comparison is triggered mostly by photo/video, in particular regarding beauty, fitness, fashion, travel, and romantic relationships.
- These contents are usually posted by weak ties such as celebrities, strangers, and acquaintances, who people
 feel "not at all close" to.

OPPORTUNITIES:

- How can we make these triggers less salient?
 - ✓ What if we train content classifiers to better label and classify these content?
 - ✓ What if content classifiers and feed filters work together to give people more control of what they want to see?
 E.g. "show me more of the content that I liked"; "show me content like this only once a week"
 - ✓ What if we give people the option of posting things either privately within a group of people vs publicly to the whole IG community? (so that fewer people would be exposed to "luxurious lifestyle from random people")
 - ✓ What if IG suggests photo filters only to certain types of photos such as landscape (low risk to trigger social comparison) but not to people portraits (major trigger for social comparison)?

3 HOW DOES SOCIAL COMPARISON RELATE TOAUTHENTIC EXPRESION

DIFFERENTIATE POSITIVE FROM NEGATIVE SOCIAL COMPARISON



"We have this friend and he's trying to pull off like he's an artist and presents himself like a big deal on Instagram. Posting him working out, like a big star, took a picture posting next to (a superstar)... but he's nothing. He's a snob... I feel deceived; it makes me feel bad for him, feel worse for the people who fall for it. I felt sad for him because he doesn't know that he can be himself, that he presented a version of himself that's not even himself. That's fabricated, and that is sad" ----Anthony, 24, Male

"I saw my friend post on IG that she got new bookings (work as a dancer), and I felt really happy for her. It made me work harder to get more jobs, too... I know she's real coz I know her in person" ----Kunal, 21, Male

weloveactors Leonardo Di Caprio, Tom Hardy and

"cheese" e PS this one is for you @tejkej94... more

Charlotte Riley ... it's Tommy's time!!! Tom says

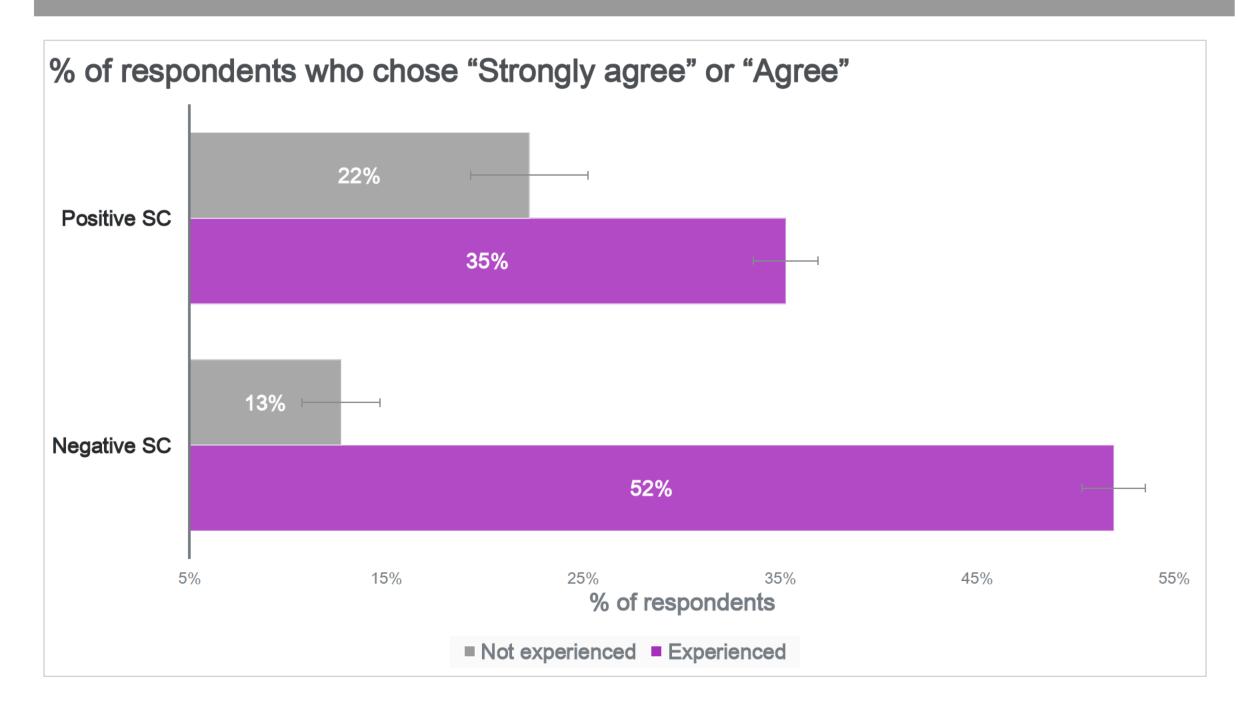
tejkej94 My three fave pepopleeee \cdots \cdots \cdots

thank you a lot my friend @weloveactors 😂 😁

91 likes

SOCIAL COMPARISON IS ASSOCIATED WITH PRESSURE TO BE PERFECT AND LESS FREEDOM TO EXPRESS TRUE-SELF

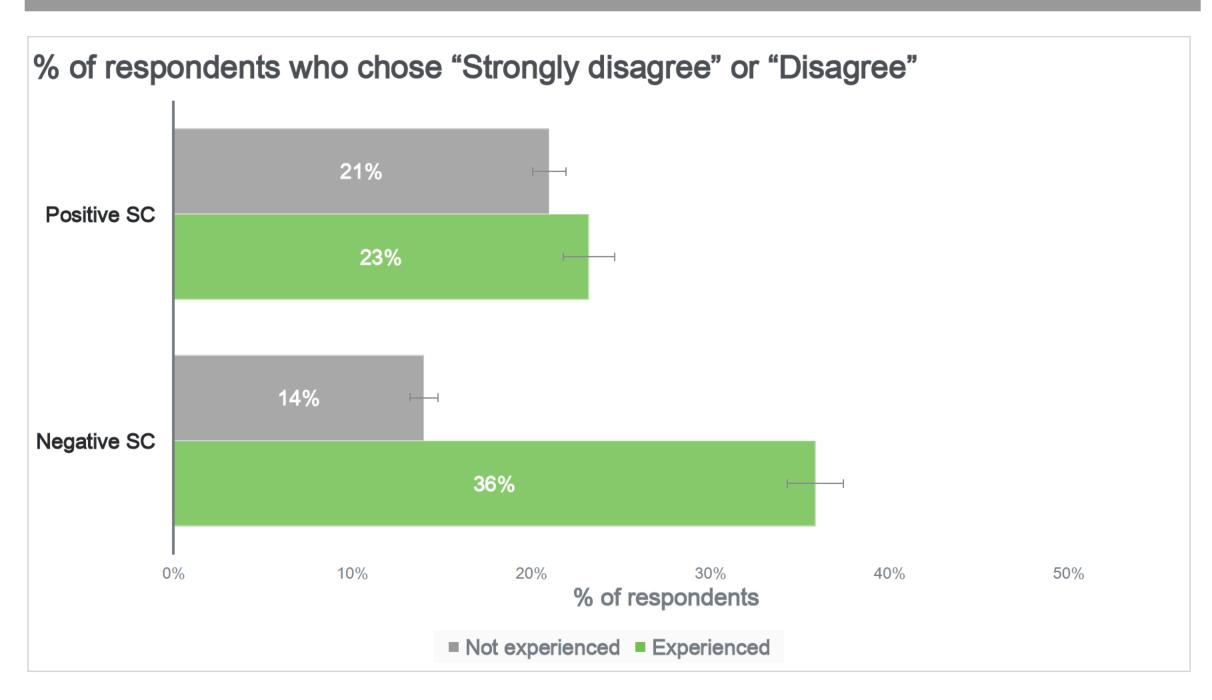
How much do you agree or disagree with the following statements? I feel pressure to be perfect on Instagram.



Both positive and negative social comparisons are associated with pressure to be perfect

How much do you agree or disagree with the following statements?

I feel free to express my true self on Instagram.



Negative social comparison is associated with less free to express one's true self

AUTHENTICITY Case 4:22-m0/03047/fek Dacument 2531/68 Filed 12N/25 Page 37 of 58

INSIGHTS:

• Social comparison is associated with pressure to be perfect and less freedom to express true-self.

OPPORTUNITIES:

- How can we promote more authentic expression on IG?
 - ✓ What if we launch campaigns such as "No Filter Friday", hashtag "#beyoutrueself"?
 - ✓ What if we experiment using disclaimers on heavily edited photos?

Note: a study (Fardouly and Holland 2018) finds that disclaimers attached to idealized social media images ineffective at reducing women's body dissatisfaction. They found that "viewing idealized images taken from social media had a negative influence on women's body image, with or without the presence of disclaimers. Disclaimer comments also had no impact on women's mood." Disclaimer may be ineffective because based on our interviews people do understand that the photos have been edited but they still feel bad about themselves in comparison. However, this dose not mean disclaimers are not helpful for promoting a more authentic culture. Further studies are needed, especially this study has small n (n=164) and was only done in the US.

Citation: Fardouly, J. and Holland, E. (2018) 'Social media is not real life: The effect of attaching disclaimer-type labels to idealized social media images on women's body image and mood', *New Media & Society*, 20(11), pp. 4311–4328. doi: 10.1177/1461444818771083.

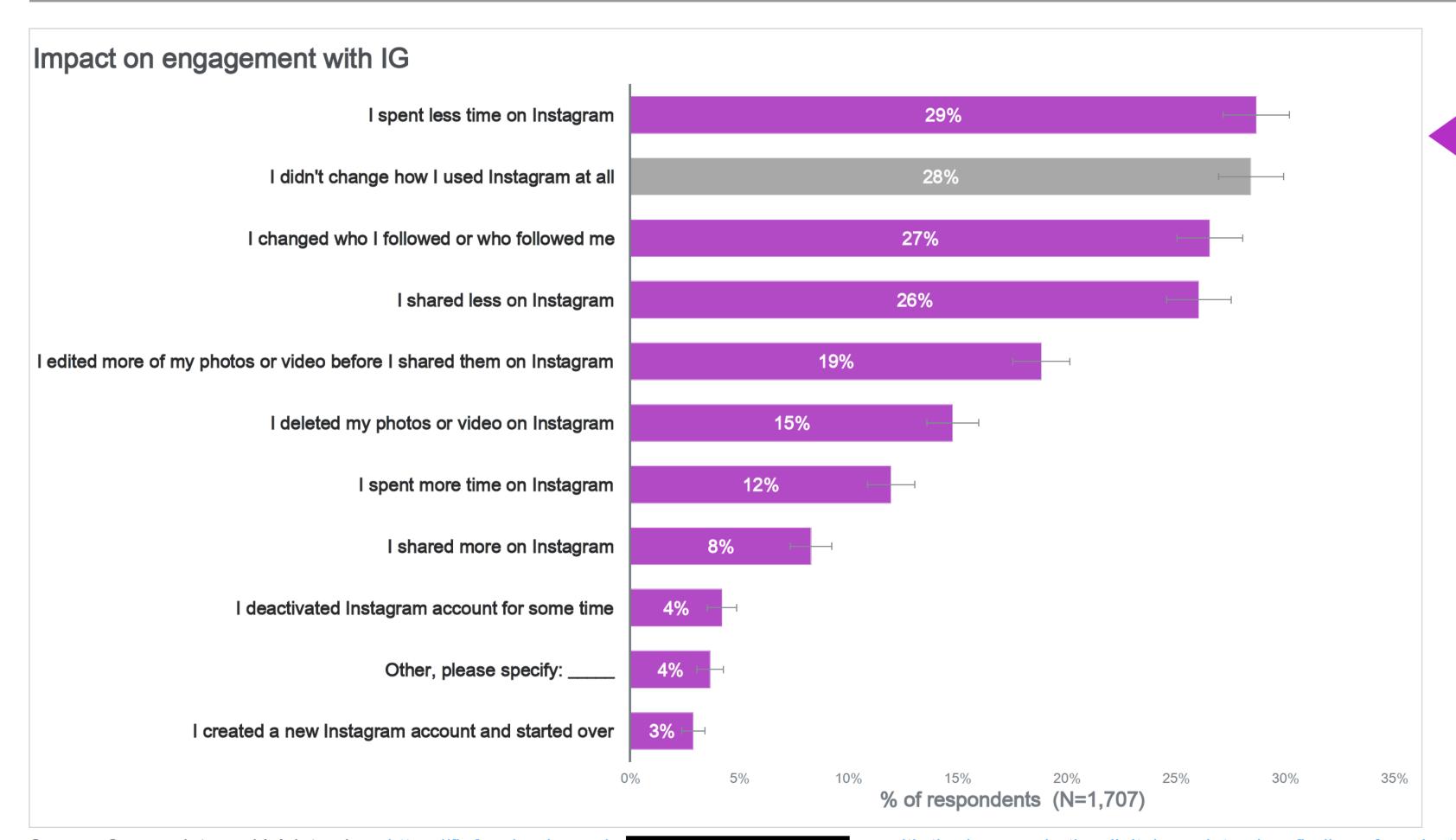
4. WHAT'S THE IMPACT OF SOCIAL COMPARISON?



IMPACT ON ENGAGEMENT WITH IG

NEGATIVE SOCIAL COMPARISON RESULTS IN REDUCED ENGAGEMENT WITH IG

Have you changed how you use Instagram as a result of seeing these posts that made you feel worse in comparison? [Select all that apply]



"So, what I do is I put my phone away. I try to get off of it.

'Cause it's a pattern: you go on there and you see all these photos. You'll go on one model to another model. You just see stunning photos of beautiful women and you start to feel down about yourself. You're like, "Oh my god, I'm so ugly." Like, "I need to crawl in a hole and not come out."

Golkoo, 26, female

Source: Survey date and LA interview: https://fb.facebook.com/n
-up-with-the-joneses-in-the-digital-age-interview-findings-from-instagram/147143206237714/

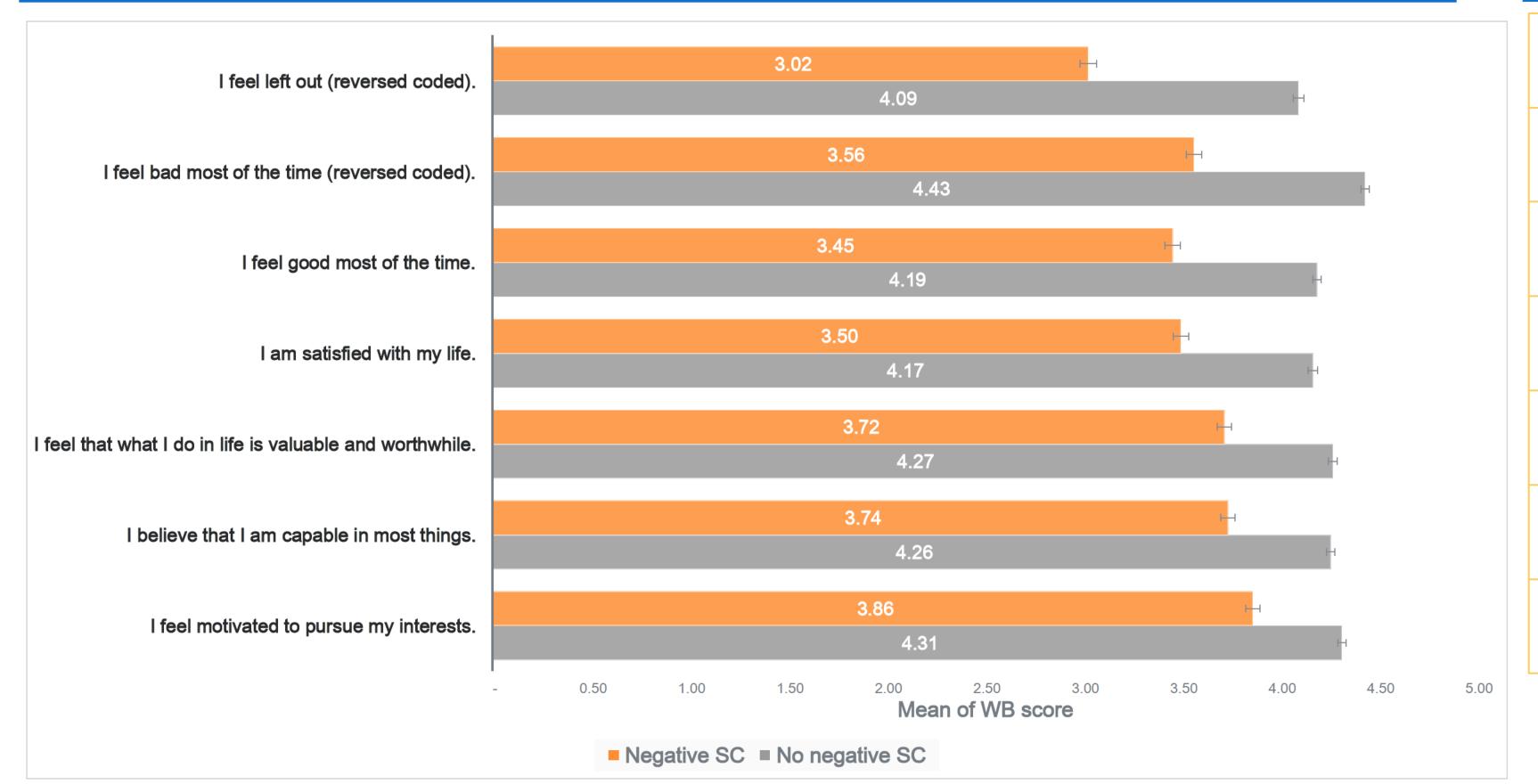


IMPACT ON WELLBEING

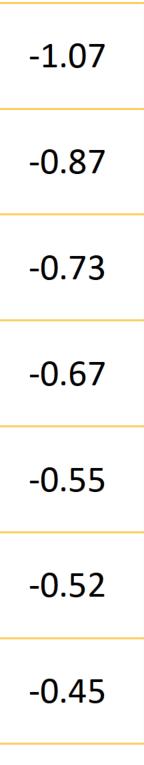
NEGATIVE SOCIAL COMPARISON IS ASSOCIATED WITH WORSENED WELL-BEING MEASURES ACROSS THE BOARD

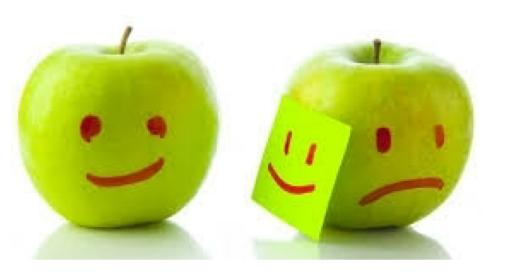
How much do you agree or disagree with the following statements?

Wellbeing by whether or not experienced negative social comparison on IG



Difference





Interpretation

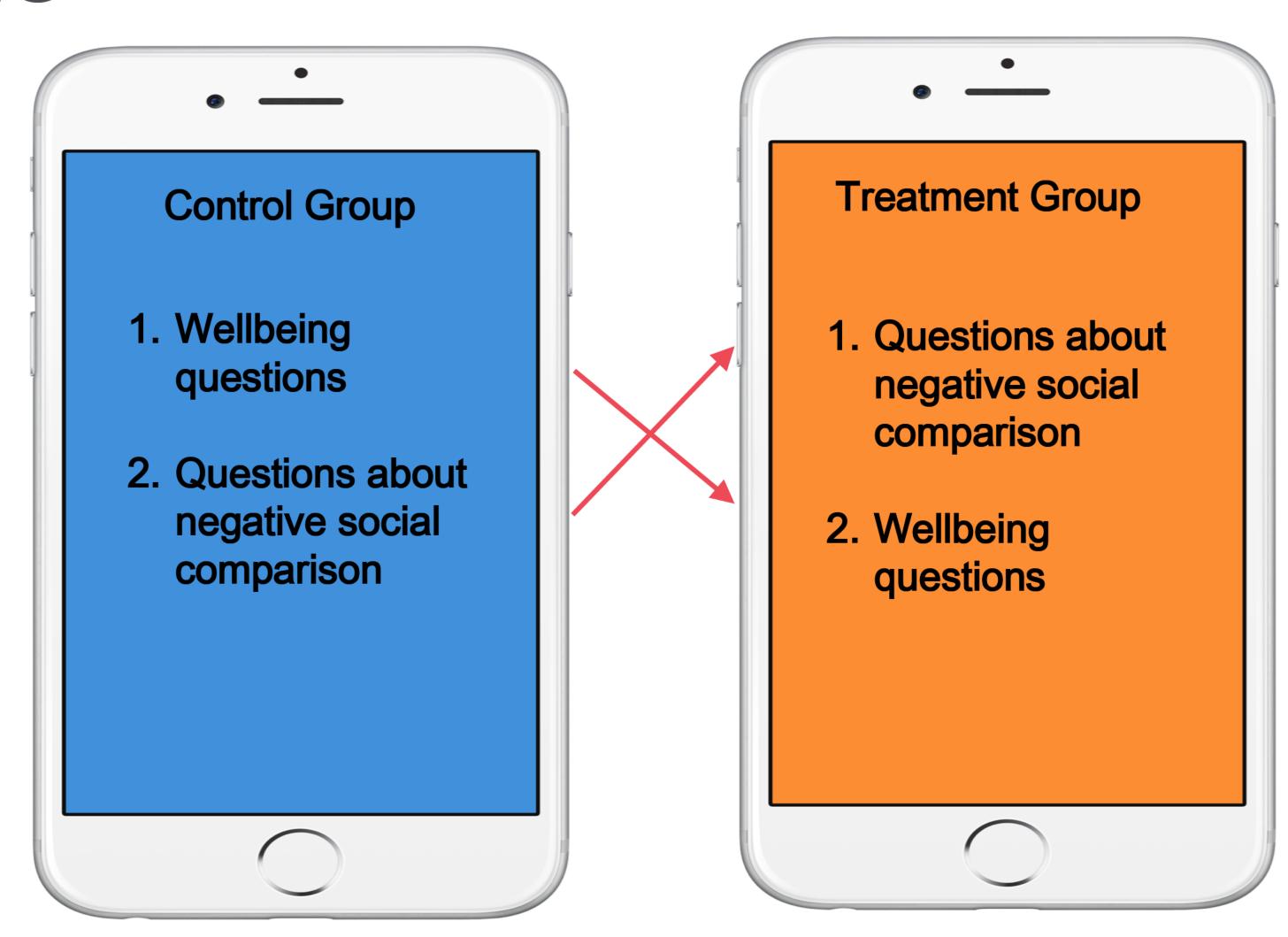
- People who have experienced negative comparison on IG have lowered WB scores than people who have not (all differences are statistically significant)
- feel left out". "Left out" can mean loneliness, but in social comparison context it can also mean a sense of falling behind, e.g. my friends are making progress in their lives/having accomplishments whereas I am not.

Note: N_negative SC = 1,789, N_no negative SC = 3,192

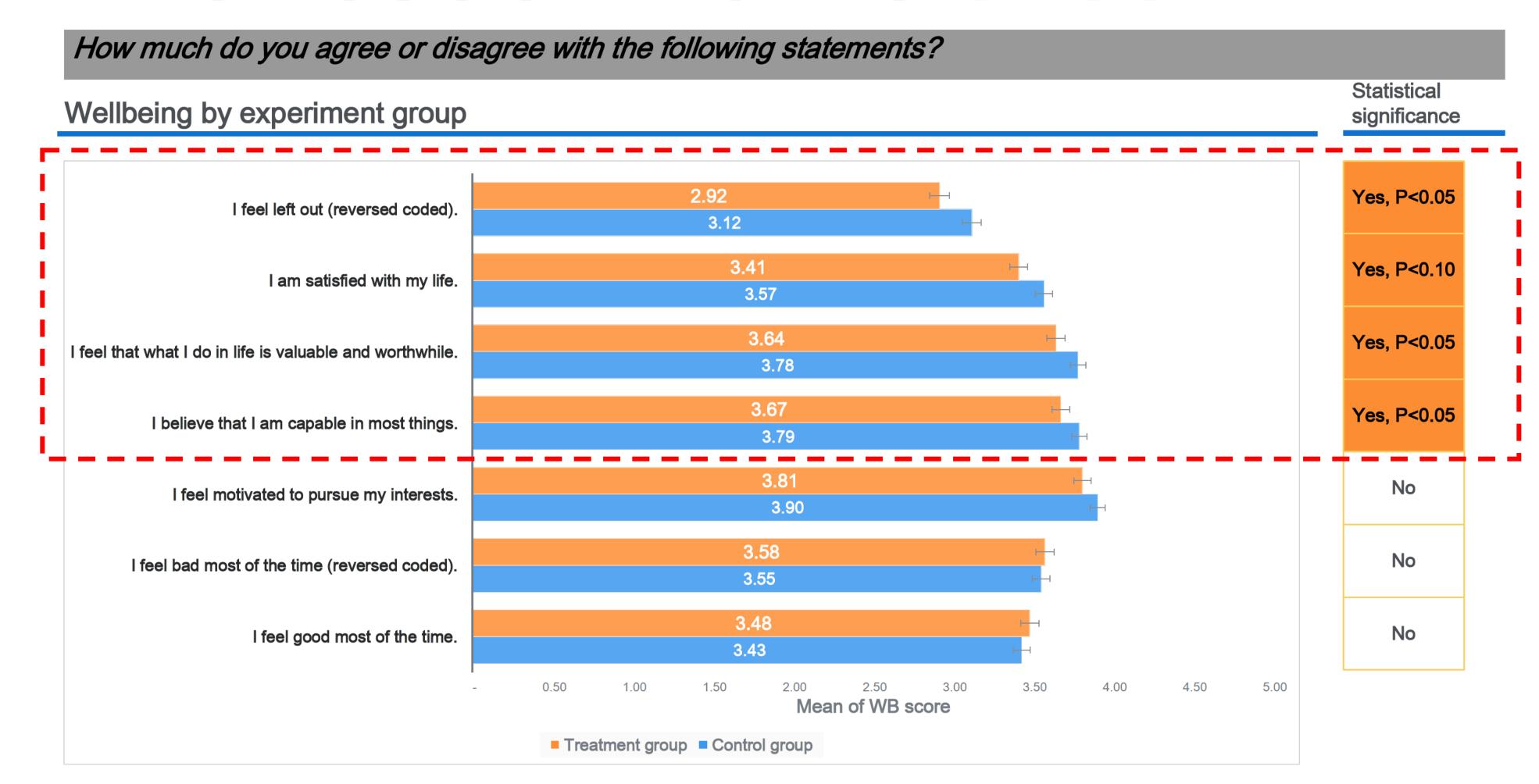
WE USE AN EXPERIMENT TO TEST IF PRIMING PEOPLE THEIR PAST SOCIAL COMPARISON EXPERIENCES MAY AFFECT WELLBEING

Survey takers are randomly put into two groups, where the **question order** is flipped

Experiments can test whether social comparison causes lowered wellbeing or is only associated with it



EXPERIMENT SHOWS AT LEAST SOME OF THIS ASSOCIATION IS CAUSAL



- Priming people their past negative social comparison experience results in lowered WB measures 4 out of 7, but not across the board as found in the previous slide. This suggests that relationship between social comparison and wellbeing may be reciprocal, i.e. people in poor WB do more social comparison, which return further lowers their WB.
- Note that the lowered WB scores shown left are only due to priming. It is reasonable to believe that the actually experiencing negative social comparison may have a larger impact

Note: N_treatment group= 846, N_control group= 943. Every respondent was put ramdomly into treatment or control group. The small sample size here is because these are only those who experienced negative social comparison on IG.

I assigned scores 1-5 respectively to strongly disagree, somewhat disagree, neither disagree nor agree, somewhat agree, strongly agree. "I feel left out" and "I feel bad most of the time" are reversed coded. For brevity, I followed common practice to treat these variables as continuous rather than ordinal categorical variables.

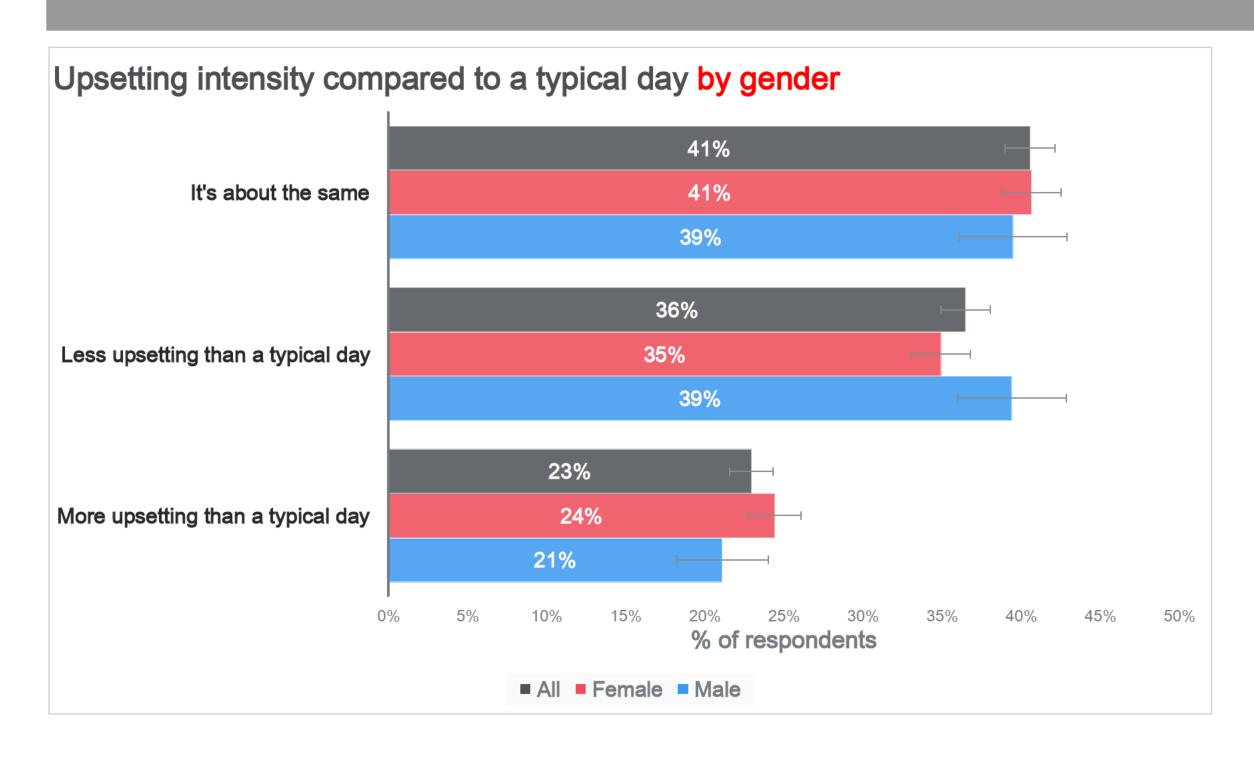


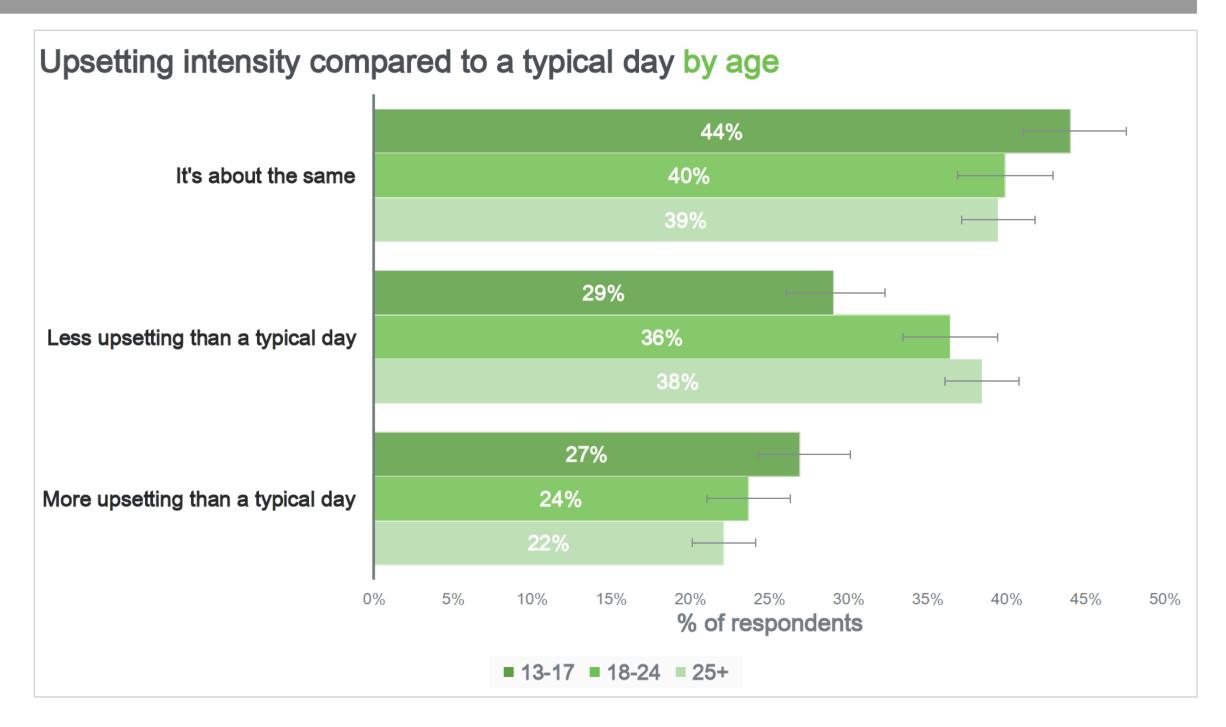
IMPACT ON EMOTION

AMONG PEOPLE WHO EXPERIENCED NEGATIVE COMPARISON ON IG, THE MAJORITY SAY IT WAS NO MORE UPSETTING THAN A TYPICAL DAY

However, teens experienced more intense emotions

Thinking about the last time when you felt worse about yourself after seeing things on Instagram, how upsetting was this for you compared to what you might experience on a typical day?





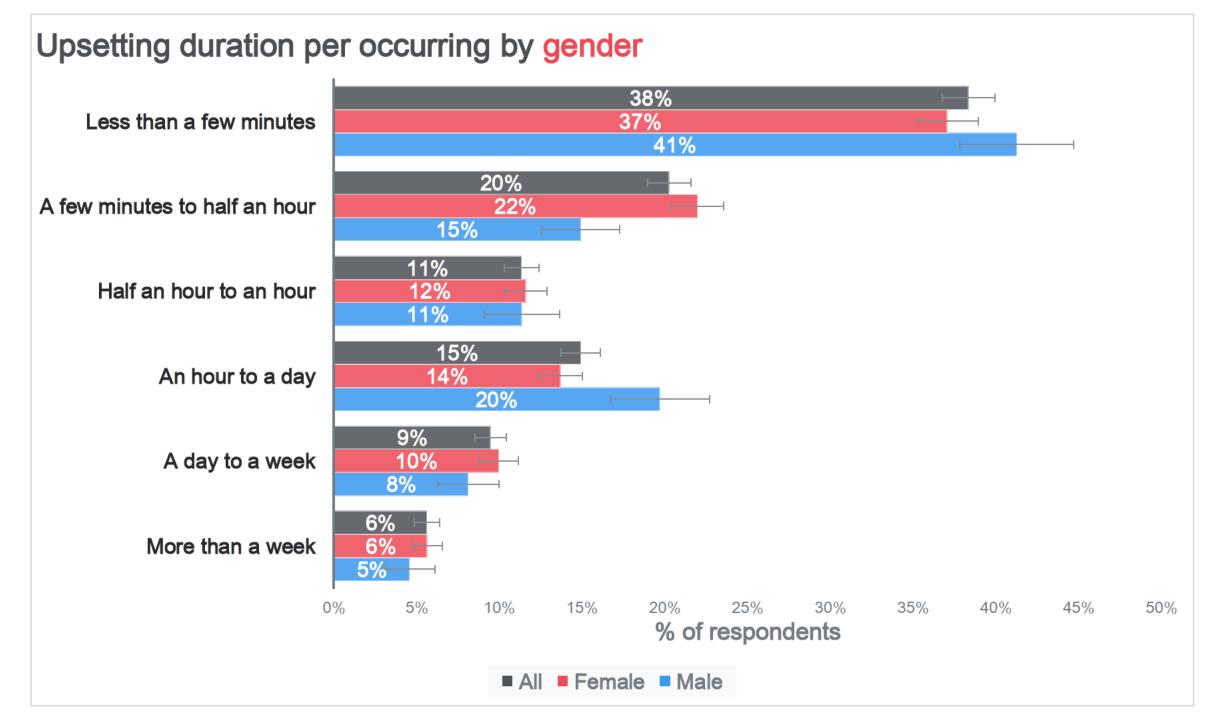
Gender differences are not statistically significant

Teens experience more intense upsetting feeling

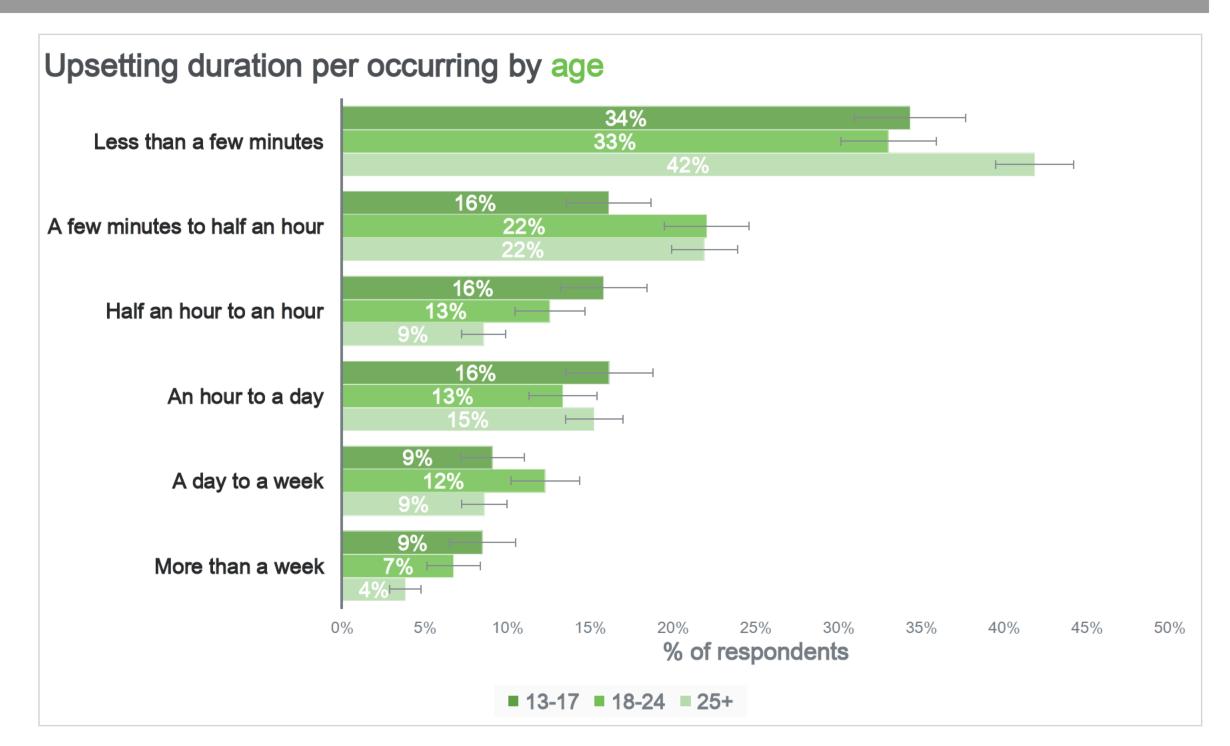
38% OF PEOPLE SAY THE NEGATIVE FEELING LASTED "LESS THAN A FEW MINS" LAST TIME NEGATIVE SOCIAL COMPARISON HAPPENED

Younger people experienced longer-lasting negative emotions

Thinking about the last time when you felt worse about yourself after seeing things on Instagram, how long did that negative feeling last when it happened last time?



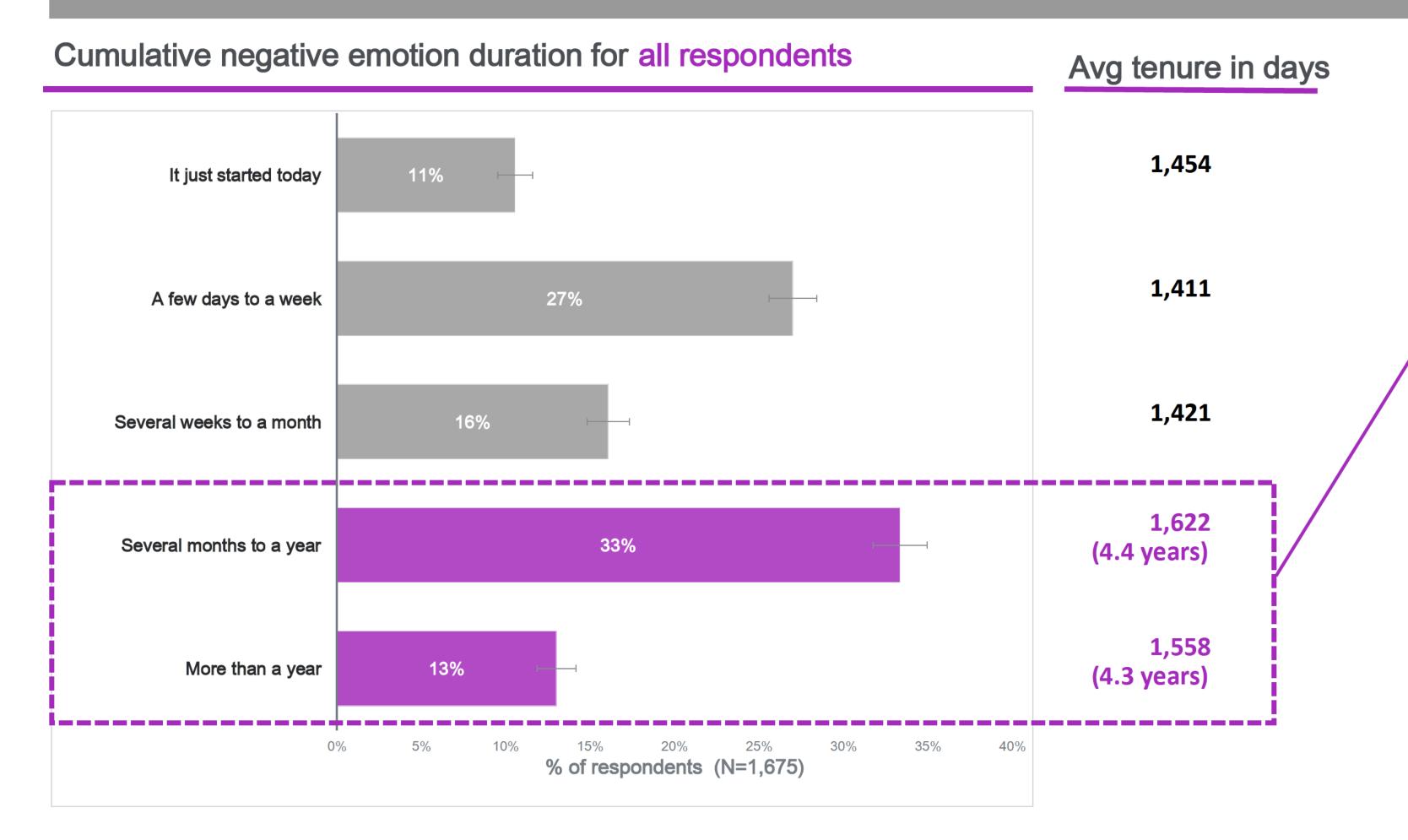
No clear gender pattern; most of the gender differences are not statistically significant



Younger people experienced longer-lasting emotions

ALTHOUGH THE NEGATIVE FEELING DOES NOT LAST LONG EACH TIME, THE CUMMULATIVE DURATION CAN BE SUBSTANTIAL

<u>In general</u>, how long have you been feeling worse about yourself after seeing things on Instagram?



- 33% people having been feeling worse about themselves on IG for "several months to a year", during their total tenure with IG for about 4.4 years (1,622 days), which is a considerable amount of time.
- The numbers suggest that there is a relationship between tenure and the length of negative SC: people on IG for longer also report longer duration of feeling worse about themselves after seeing things on IG.

INSIGHTS AND OPPORTUNITY FOR IMPACT

INSIGHTS:

- Negative social comparison reduces engagement with IG.
- Negative social comparison **lowers well-being** (loneliness, life satisfaction, self worth, and self efficacy), and people with lower well-being may be more prone to negative social comparison.
- Most people (38%) report that the **upsetting feeling** caused by negative social comparison only lasted for "less than a few minutes" when it happened last time, however the **cumulative duration** is substantial: 33% of people have been feeling worse about themselves on IG for "several months to a year".

OPPORTUNITIES:

- How can we counter the negative emotional impact?
 - ✓ What if we encourage people to express gratitude on Instagram?



NEXT STEPS

NEXT STEPS

- Now that we have identified **teen girls and young women** as the target population, future studies should focus on them in order to understand how exactly they perceive something as negative social comparison provoking and how to counter it. An in-depth interview asking them to evaluate their IG feeds should be useful.
- It is a surprising finding that positive social comparison is almost as prevalent as negative social comparison. Future studies should study positive social comparison esp. under what circumstances it is motivational and under what circumstance it would induce jealousy. The perceived feasibility of realizing the goal may be a key differentiator but we need research to validate this hypothesis.
- We also have mixed messages regarding the prevalence of social comparison on social media vs in everyday life. The upcoming FB survey will provide one more data point. We can also do short in-app surveys to gather more evidence.
- Future research should study **authenticity** in greater detail. One area of inquiry is whether perceived authenticity would affect not only how people react to posts but also **how people may choose how much and what they want to share**. It is possible when perceived authenticity is low, people would be more selective regarding what they choose to share and also edit the photos more heavily before they share them.
- On wellbeing, we found that priming people their negative comparison past experience led to lowered wellbeing. Future studies can use experiments to **directly test the magnitude** of this impact. For example, we can show people different posts/photos and ask to what extent they make them feel worse/better about themselves as well as their wellbeing measures.

THANK YOU ALL

Community Researchers at IG My collaborators at FB

PM, designers, data scientists, and engineers at IG

